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ORIGINAL ARTICLES.

MARINE-HOSPITAL RATION.

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The ordinary articles and quantities of subsistence supplies for ten thousand (10,000) full rations are:

Meat, fresh and salt,	8,000 lbs.
Fish, fresh and salt	2,000 lbs.
Milk	800 gal.
Butter	1,000 lbs.
Eggs	300 doz.
Lard	300 lbs.
Bread stuffs and other prepared farinaceous food	10,000 lbs.
Vegetables	10,000 lbs.
Fruits, fresh and dry	1,500 lbs.
Tea	100 lbs.
Coffee	300 lbs.
Sugar	1,500 lbs.
Molasses or syrup	25 gal.
Salt	500 lbs.
Pepper	25 lbs.
Vinegar	25 gal.
Pickles	25 gal.

Meat, the first article on the list, especially beef, is the most nutritious of all animal foods. It is easily cooked, very digestible, and perhaps more extensively consumed than any other animal product. The composition of fresh beef—the relative proportions of water, nitrogenous matter, fat and salts—the mean calculated from Pavy's table of lean and fat beef, Yeo's table of three different examples of butcher's beef (very fat ox, moderately fat ox, and lean ox), and Parke's table for calculating diets, including meat of best quality with little fat, like beef steaks, uncooked meat of the kind supplied to soldiers—bone constituting one-fifth ($\frac{1}{5}$) of the soldiers' allowance, and uncooked meat of fattened cattle, and Rohe's table of animal foods, may be given approximately correct, as follows:

Water	69.99
Nitrogeneous matter	19.40
Fat	8.57
Salts	2.04

It is proper to state, however, that the proportion of fat in a very fat ox is given as high as twenty-seven per cent. and Prof. Atwater, as quoted by Billings, places the difference between different parts of well fattened animals, as follows:

Beef, round	8.1
Beef, neck	14.3
Beef, sirloin	14.3
Beef, side	21.7

The first table may also be applied to and accepted as approximately correct for moderately fat mutton and pork, though the fat of both these articles of animal food varies from six to forty per cent.

Moderately fat or lean mutton is as easy of digestion as beef but very fat mutton is hard of digestion and unsuitable for invalids.

Pork is not included in the specified ration of the Marine Hospital, but is allowed in the supply table, and while hard of digestion and less adapted than mutton as a food for invalids, nevertheless serves a useful purpose; and salt pork and bacon, like other salt meats are not only popular foods, but from the small proportion of water they contain, also decidedly advantageous from an economic standpoint; and when used with other lean meats, such as rabbit, veal and poultry, and also with other articles rich in nitrogenous matter, as for example in the palatable dishes of bacon and eggs, liver and bacon, and pork and beans, they serve "to establish a proper proportion in the supply of nitrogeneous and carbonaceous material" and the combination is founded on a rational principle.

It is claimed also that in some cases of dyspepsia, salt and smoked meats are comparatively easy of digestion, that they are not so likely to give rise to acid fermentation in the stomach, being less readily decomposed. Niemeyer mentions a remarkable case of this kind—the patient being obliged to limit his diet to lean and smoked ham, sea biscuit and a little Hungarian wine.

FISH.

There are many kinds of fish used as human food. They vary greatly in composition, nutritive value and digestibility. The eel, herring, mackeral and salmon contain large proportions of fat and are exceedingly nourishing to persons of good digestion, but the lighter kinds are, as a rule, more suitable for invalids and persons with delicate stomachs.

Dujardin-Beaumetz, according to Yeo, "divides fish from a nutritive point of view, into three classes, 1. Fish with white flesh, like the whiting and sole. 2. Fish with red flesh, like the salmon, and 3. Fish with greasy flesh, like the eel." The last he considers most nourishing, but least digestible.

The following table of mean composition of white-fleshed fish, including the sole, haddock, carp, whitefish and pike, compiled from different analyses represents in a general way the quality of fish used in the Marine-Hospital ration.

Water	79.90
Nitrogenous matter	17.57
Fat	1.06

Some kinds or varieties of fish are said to improve in flavor and tenderness by being kept for a short time, but as a rule, fish cannot be cooked or eaten too soon after being taken from the water; and salted fish is difficult of digestion and not very nutritious. Fish of all kinds are in the best condition for the dietary just before spawning; during that process, the flesh loses its edible quality and becomes watery and flabby.

The theory that fish is an "intellectual" or "brain food," because of the phosphorus it contains, does not receive much support from recent analyses—good beef being equally rich or *poor* in phosphates. But fish is more easily digested than beef, and, therefore, better adapted for *brain workers*.

Yeo states that Louis Agassiz spoke of fish as food "refreshing to the organism, especiallly after intellectual labor; not that its use can turn an idiot into a wise or witty man, but a fish diet cannot be otherwise than favorable to brain development."

MILK.

Milk is not only a perfect food, containing as it does in proper proportions the four classes or grand divisions of alimentary principles necessary for the support and development of the young of all mammalian animals, but it is the important fluid upon whose analysis the said classification was originally founded. It is the principal constituent of various diets, and is capable alone of sustaining life. It is the most serviceable food for invalids, and as Robert's Well says, "All plans of feeding the sick on liquid food, center round milk." It varies in composition—in the relative proportions of nitrogenous matter, fat, carbohydrates and salts, and is of course, largely composed of water, as shown by the following table of mean composition:

Water	87.20
Nitrogenous matter	3.57
Fat	3.68
Carbohydrates	4.84
Salts	.70

The above table is the mean of three analyses and corresponds closely to the report of the French commission, appointed by the Prefect of Police of Paris. From the analysis of milk, made in various countries the commissson fixed the minimum standard of good milk at—

Water	88.50
Casein, extractives and salts	4.00
Butter	2.70–3.00
Lactin	4.50

Casein is the chief constituent of the nitrogenous matter (the albuminates) but differs from ordinary albumen in not being coagulated by heat. Its fluidity in fresh milk is due to the alkaline or neutral calcium phosphates with which it is combined; but the addition of any acid capable of decomposing or converting the alkaline phosphate into an acid phosphate will cause immediate coagulation or precipitation of casein, and the formation of the so-called curd —the fluid portion from which it separates is called whey. If milk is allowed to stand any length of time, spontaneous coagulation takes place by the development of lactic acid. Warmth hastens this process, and it is a common observation that milk "turns sour" very rapidly in the heat of summer, or during a thunder storm.

The salts contained in milk of average quality amount to about 0.7 of 1 per cent. Calcium phosphate is a considerable and important constituent. Milk also contains chlorides of sodium and potassium, phosphates of soda, magnesia and iron. Butter is another name for the fats or glycerides of milk obtained by the familiar process of skimming and churning, and will be referred to again further on. Lactin is the carbo-hydrate of milk and is known also as lactose or milk sugar.

SKIMMED MILK.

Milk from which the cream has been removed is, of course, less rich in fatty matter than fresh milk, and while more easily digested and useful in certain forms of disease, and as a *starvation* diet in the treatment of obesity, is, I believe, seldom used *intentionally* in the Marine-Hospital ration. It contains, according to the mean of three different analyses by Letheby, Bauer and Church:

Water	89.90
Albuminates (nitrogenous matter)	3.36
Fat	.84
Lactose	5.09
Salts	0.80

WHEY.

As before mentioned, whey is the fluid portion of milk from which the curd has been separated by coagulation. It is sometimes used as a poor substitute for milk and is readily made by adding a small quanity of lemon juice to milk, one or two teaspoonfuls to a pint, and boiling it. Whey contains only a small portion of the elements of the milk, but it is a pleasant drink and more or less useful in certain febrile and stomach affections, and is a popular "cure" at some of the alkaline and salt spring health resorts of Germany and Switzerland. The mean composition of whey, according to Bauer, is:

Water	93.3
Albuminates	0.82
Fat	0.24
Lactose	4.65
Lactic Acid	0.33
Salts	0.65

CREAM.

Cream is that portion of the milk which rises to the surface when the liquid is cooled and at rest. It varies in amount according as the milk is rich or poor, and also according to the means or carefulness by which it is separated. It varies in composition, and the range of variation of the relative quantities of its constituents is so great that no satisfactory table can be given. The mean of two different analyses gives:

Water	56.5
Casein	3.8
Fat	35.8
Lactose	2.6
Salts	1.1

According to Church, the variation of water alone is from 28 to 68 parts in 100. Bauer places the extremes at 22 and 83, and states also that the fat varies from 8 to 70.

BUTTER.

Butter is one of the most popular, agreeable and digestible of the animal fats, and while used almost exclusively as an accessory to other articles or as the necessary grease and flavor in the process of cooking various food products, is *alone* a very valuable food. It is made by the well known process of churning and varies greatly in quality and flavor. It contains a variable amount of casein which is taken up from the milk. Rancid butter is unfit for use, and butter is considered good or bad according, as it contains much or little casein. The rancidity of butter being due to changes in the fat, brought about by alterations in the casein.

The unpleasant and peculiar flavor or taste which some butter possesses is frequently due to the

strongly flavored food given to the cows, or which they find in the pasture—as for example, garlic. But another and perhaps the most frequent cause of strong or tainted butter, is the absorption of odorous vapors or volatile flavors from the atmosphere in which it is placed, as for example, the vapors from cheese and meat, and especially from any and every kind of decaying vegetable or animal matter; and these remarks apply to milk and butter alike. The following table shows the average proportions of the most important constituents of good butter, being the mean of four different analyses:

Water	10.4
Nitrogenous matter (casein)	.6
Fat	86.5
Carbo-hydrates (Lactose)	0.4
Salts (common salt)	1.1

BUTTERMILK.

The fluid portion of the cream that is left after the butter is separated by the process of churning is a nutritious drink and food. It is easily digested and well adapted for persons suffering from stomach disorders, epecially gastric catarrh, and in the "Milk Cure" of albuminuria and diabetes it may be substituted for fresh milk. Niemeyer states that in some patients, fresh milk is not so well borne because it readily curdles in the stomach and forms large, firm lumps, while in the buttermilk, the casein is already curdled, but finely divided. He also quotes the prescription approvingly, "When the patient is hungry, let him eat buttermilk; when he is thirsty, let him drink buttermilk." The composition of buttermilk as shown by the mean of different analyses is:

Water	90.
Nitrogenous matter (casein)	4.2
Fatty matter (butter)	0.4
Lactine or lactose (milk sugar)	4.3
Lactic acid	

EGGS.

Fresh eggs, raw or lightly cooked, are very digestible and highly nutritious. They contain all the elements of the blood and are, like milk, almost a perfect food. The shell consists largely of carbonate of lime, but contains also a small proportion of phosphate of lime and nitrogenous organic matter. It is lined by a delicate membrane which encloses the white of the egg. The yellow or yolk of the egg lies within the white and is also enclosed in a thin membrane. Hard cooked eggs are not easy of digestion if eaten alone, but if taken together with other food and thoroughly masticated they are not very objectionable to a healthy stomach. According to Church "the average weight of a hen's egg, shell and contents is about one and three-fourths ($1\frac{3}{4}$) ounces. It becomes lighter by being boiled, losing a little water." Parkes places the average weight at about two ounces, and calculates ten per cent. shell 22.8 albumen and fat, and 67.2 water, and states that "if an egg weighs two ounces, it contains nearly two hundred grains solids. Pavy, quoted by Yeo, calculates that such an egg would yield 110 grains nitrogenous substance, 82 grains of fat and 11 grains of saline matter. The mean of several analyses shows that the white of an egg has the following composition:

Water	85.2
Nitrogenous matter	12.3
Fat	1.1
Carbo-hydrates	
Salts	.8

The yolk of the egg shows a higher degree of richness. It contains:

Water	51.1
Nitrogenous matter	15.6
Fat	30.8
Carbo-hydrates	0.1

The mixed whites and yolks of hen's eggs, according to Church (shells excluded) contain:

Water	71.7
Albumen and casein	14.
Oil and fat	11.
Membranes and extractives	2.
Mineral matter	1.3

BREAD.

Of all the various cereals used in making flour, wheat is of first importance and yields the best bread. Wheat bread is an acceptable and nutritious food and is more extensively consumed than any or perhaps all other vegetable products. Wheat, like all other articles of food, varies in composition, but the variations in the grain are chiefly limited to the relative proportions of starch and nitrogenous matters. The differences in composition are not only shown between the different varieties of the grain, as for example, the relatively small proportion of albuminoids in the soft, opaque grains of white wheat, and the large proportion in the hard, translucent varieties; but differences also appear in wheat of the same variety, accordingly as it is grown during a dry or wet season. Wheat grown during a fine, dry season contains less starch and more albuminoids than wheat produced in a wet season. The wheat grain contains a middle part or kernel and six thin coverings or coats. The several coats or coverings become thinner and whiter and probably more nutritious as they approach the kernel. Meal is produced by grinding wheat between millstones, and by sifting, winnowing and regrinding, the meal is separated into a number of different products. In some processes of milling the outer coat or fine bran is removed by a previous operation, and in roller milling the germ of the grain is also as a rule removed. In the older process of milling only three different degrees of fineness are recognized—flour, middlings and bran. In the new systems many different grades are produced. Fine flour, seconds flour, tails, sharps, pollards and bran are only a few of the numerous products. In this small classification the first three are considered *flour*, the remainder bran. The thin outside coat of wheat is very indigestible, being largely composed of silica. Bread made from the *finest* wheat flour is as a rule, very digestible, and is almost entirely taken up or absorbed in the process of digestion. It is, therefore, of the greatest value to persons or patients of weak digestion and looseness of the bowels. To obviate or counteract the constipating effect of such bread, bran, rye, cornmeal and molasses are frequently added, forming the different varieties of graham or brown bread. Bread, on the other hand, made from the coarser grades of flour is considered less digestible in proportion as the flour contains the outer or inner scales of the grain, the relative proportions of silicious matter and woody fibre becoming less and less as they approach the center. The indigestibility or low nutritive value of this quality of bread is due to the fact that its nutritive elements are hurried through the bowels by reason of the excessive irritation produced by the indigestible silica, etc., which may also carry away other nutritious

material before digestion has been completed, and thereby acutally lessen nutrition. For those who are over-fed and need a laxative, it might be of great value; but if this action is desired, it may be brought about more readily and agreeably perhaps by the use of the whole grain in the form of "cracked wheat" porridge with cream and sugar.

The mean of two different analyses shows that wheat contains approximately:

Water	14.
Nitrogenous matters	11.7
Fatty matters	1.4
Starch, with traces of dextrine and sugar	68.4
Cellulose (vegetable or woody fibre)	2.6
Salts, potash, soda, lime, magnesia, phosphoric acid, etc	1.7

WHEAT FLOUR.

Water	13.93
Nitrogenous matter	9.7
Fatty matters	0.9
Starch, etc	74.2
Cellulose	0.5
Salts	0.6

These tables are of necessity only approximately correct. In some of the harder varieties of wheat—especially those grown in Italy, the relative proportion of nitrogenous matter, gluten and soluble albumen, is greater; and according to Yeo, the proportion of starchy substances in different qualities of wheat ranges from sixty (60) to ninety (90) per cent. Besides the gluten (which is composed of several distinct substances) and the soluble albumen, another nitrogenous substance, termed *cerealin*, a form of diastase or ferment is found in wheat. Cerealin has very active properties, is capable of changing starch into dextrine, sugar, and lactic acid, and is therefore a valuable aid in the process of digestion. But as this substance is found mostly in the outer scales of the wheat grain it is a constituent of the bran and the coarser grades of flour, and the very white or *finest* flour is therefore deficient in this important element; and when in the processes of high milling, the germ of the grain, which contains the diastase proper, is also removed, the resultant flour is beautifully white, free from odor, and superior to any other quality so far as starchy or heat giving matter is concerned, but as a flesh former it must be regarded of less value. The germ is not only rich in nitrogenous matter, but it contains also a large proportion of fat or oil, and phosphoric acid.

"The following analysis," according to Church, "was made on a pure sample of flattened germs from a roller mill."

Water	12.5
Albuminoids, disastase, etc	35.7
Starch, with some dextrine and maltose	31.2
Fat or oil	13.1
Cellulose	1.8
Mineral matter	5.7

This analysis also showed that 60.6 per cent. of the mineral matter was phosphoric acid "so that the original embryos contained 3½ parts per hundred of this valuable constituent of bone," and three times the proportion of nitrogenous matter and more than six times the proportion of fat or oil in the whole wheat grain. He adds, however, "that the albuminoid matter included little or no tenacious gluten, but a considerable quantity of the diastatic ferment. The composition of bran varies in proportion to the number of coatings or coverings removed from the outside of the grain.

The following table, also quoted from Church, shows the composition of "a rather coarse bran."

Water	12.5
Albuminoids and cerealin	13.3
Indeterminate nitrogen compounds	3.1
Starch, with some maltose	43.6
Fat	3.5
Cellulose	18.0
Mineral matter	6.0

The separation of this coarse bran from flour is certainly wasteful, but as an article of diet it is indigestible, not only on account of its mechanical condition, but also by reason of the large proportion of cellulose (woody fibre) and silicious matter it contains. But as before stated, the fibrous and silicious matter is found in the outer coverings of the grain, and if these are first removed and the decorticated grain is then thoroughly ground, the best (*not the finest, whitest*), flour will be produced.

Bread making may be regarded as the first process in the digestion of wheat flour. The flour is rich in nutritious elements, but in order to be at all palatable or digestible, it must first be mixed with water and salt, made into dough or paste and then baked into firm and porous bread. The porosity is produced by the development or generation of carbonic acid gas within the dough, or by forcing it in from without before the mass is placed in the oven. There are several ways of effecting the process.

First.—By the addition of *yeast or leaven* fermentation takes place and carbonic acid and alcohol are produced. Both of these products escape almost completely during the process of baking; but the carbonic acid gas in its evolution and dissemination through the lump, causes numerous bubbles, and these remain after the gas has escaped and thus the bread becomes porous.

Second.—By the addition of an alkaline carbonate or bicarbonate, the carbonic acid being generated or set free upon the application of heat.

Third.—By the use of *baking powder.*

Fourth.—By forcing the gas in from without, or mixing the flour with water highly charged with carbonic acid gas in an iron vessel under pressure. Bread made by the latter method is called "aerated." The advantages claimed for aerated bread over fermented or yeast bread, are its lightness and dryness and its freedom from the dangers attending the older process of allowing fermentation to proceed too far or not far enough before the *sponge* is placed in the oven, and thus obtaining a sour (acetic acid) taste, or on the other hand a *heavy* loaf. But here the baker's art must *leaven* the process.

Bread varies greatly in digestibility and nutritive value, as well as in chemical composition. The mean of three different analyses is shown in the following table:

Water	37.07
Nitrogenous matter	7.91
Fat	1.39
Carbo-hydrate (starch, dextrine, etc.)	50.14
Salts (including common salt added to the dough)	1.16

OATMEAL.

Oatmeal is a very nutritious food, the richest of all cereals in nitrogenous matters and fat. Its composition, according to Dujardin-Beaumetz, is:

Water	8.7
Fats	7.5
Starch	64.0

Nitrogenous substance	11.7
Salts	1.5
Cellulose and other substances	6.6

It contains a large proportion of indigestible cellulose, but it is easily cooked and is the best food product we possess for making porridge and gruel. It is also sometimes made into cakes, but it is not adapted for bread making, the nitrogenous matter not containing a sufficient amount of adhesive gluten

INDIAN CORN.

Indian corn is produced and consumed in immense quantities in different parts of the world, but principally in North America, the land of its nativity, and especially in the United States. Indeed, its chief preparations, johnny-cake, hoe-cake, mush and milk, and not forgetting hog and hominy are as indigenous as the plant itself.

The whole mature grain is sometimes used as human food, after having been parched and is said to be convenient and valuable to travellers in the Eastern countries. The whole grain is also used in the familiar form of "green corn" and if taken at the proper time and properly cooked, it is not only digestible and nutritious but, if eaten with good butter and salt, delicious.

Corn meal is much coarser than wheat flour and is not so readily cooked, but with proper care and sufficient cooking it can be made very digestible, the only indigestible part being the thin silicious skin or coving. It is not well adapted for making loaf bread on account of the difficulty of baking the central portion, but for Johnny cake, mush and milk, griddle cakes, fried mush and muffins, it is excellent; and when mixed with wheat flour in the preparation of these or some of these *good things*, they become even more palatable and digestible.

Hominy is a popular article of food in some parts of this country, especially in the Southern States. It is the mature grain from which the heart or kernal and skin has been removed. The finer meal cornstarch, is also extensively used and served in the form of *blanc-mange*. The various preparations of corn meal are suitable articles of diet for all persons of good digestion, but in persons with irritable mucous membranes, they are sometimes the cause of intestinal disorders and diarrhœa; while in some cases of torpidity of the bowels, nothing better can be prescribed.

The composition of corn, according to Church, is as follows:

Water	14.2
Albuminoids	9.0
Other nitrogenous compounds	0.3
Starch, etc	66.5
Fat	5.0
Cellulose	3.0
Mineral matter	2.0

According to Parkes the relative proportion of fat is 6.7, carbo-hydrate, 64.5.

RICE.

Rice is the main food of at least one-fourth of the human race. It is grown in nearly all parts of the world where the temperature is high enough for its cultivation. South Carolina is its chief source in this country.

Rice is of less nutrient value than corn, being comparatively poor in nitrogenous matter, and very poor in fat and mineral matter. It consists chiefly of starch, and in composition is not unlike the potato. It is very digestible and is frequently prescribed for patients with weak digestions, and when properly steamed and eaten with milk and cream is nutritious and palatable.

It has the following composition (Church).

Water	14.6
Albuminoids, etc	7.5
Starch, etc	76.0
Fat	0.5
Cellulose	0.9
Mineral matter	0.5

BEANS AND PEAS.

The ripe seeds of many of the leguminosa are used as food; they are all rich in nitrogenous matter. This consists chiefly of vegetable casein or *legumin*, and in quality and nutritive value far exceeds the wheat grain. Beans and peas, owing to the large proportion of albuminates they contain should always be eaten with other foods rich in starch and fat or oil. They should be boiled slowly and for a long time, otherwise they will not be digestible.

The composition of beans and peas is about as follows:

BEANS

Water	14.0
Nitrogenous matter	23.3
Fats	3.
Carbo-hydrates	57.2
Salts	3.

PEAS.

Water	14.6
Nitrogenous matter	22.3
Fats	1.8
Carbo-hydrates	55.8
Salts	2.5

They also contain a small proportion of cellulose. The pods of beans when green and unripe are a popular food, and if properly cooked are very palatable and digestible. Unripe or green peas are also extensively used; they contain a considerable amount of sugar and are easy of digestion.

POTATO.

The potato grows in temperate climates: it is very productive and when properly cooked, palatable and digestible. It is eaten daily by millions of people and was until a comparatively recent time the chief support of a whole nation. It is deficient in nitrogenous matter and salts, but the starch of which it is largely composed is easy of digestion and when eaten with milk or rather buttermilk which is rich in nitrogenous matter, the potato forms a good and economical food.

Potatoes are said to be waxy, or watery, or mealy, according as they are grown in bog lands or in sandy soil; but the potato of sandy soil, and of the very best quality is not infrequently rendered *waxy* or *watery*, and indigestible through the ignorance or carlessness of the cook.

The juice of potatoes contains vegetable acids and their salts and a small quantity of albuminous matter, and the mealiness of the potato depends upon the coagulation of the albuminous constituents and absorption of the acid watery fluid. If the potato is not properly cooked, the granules do not take up the watery fluid, the cells do not become properly distended and separated and the consequence is a waxy, watery or soggy lump.

Potatoes should be boiled in their skins or jackets and in salt water. The boiling must be complete and

proceed slowly, otherwise, the starch will be undigested and the albuminates and cellulose will be hard. Steaming is the best method, provided the steam is not super-heated.

The composition of the potato as given by Church and which corresponds practically with the mean of three other analyses is:

Water	75.
Albuminoids	1.2
Extractives, as solanin and organic acids	1.5
Starch	18.0
Dextrine and pectose	2.0
Fat	0.3
Cellulose	1.0
Mineral matter or salts (lime, potass. soda)	1.0

Other roots, tubers, and bulbs used to a limited extent in the Marine Hospital ration are carrots, turnips, parsnips, beets and onions. They all contain about ninety per cent. of water and a relatively small proportion of nutritious substances.

The turnip is the least nourishing; it contains no starch and only 0.5 albuminoids. Its chief constituent is a jelly like substance of the *pectose* group. It contains 1.8 cellulose and 0.8 mineral matter (Church.)

The composition of carrots differs slightly from that of the turnip. The relative proportion of pectose etc., is higher and the carrot also contains a considerable quantity of sugar.

The parsnip is similar to the carrot in composition, but it contains less water, a little more sugar and some starch, the latter not being present in the carrot. The parsnip if properly cooked is a very palatable accompaniment to salt fish or beef.

The beet root contains more sugar and also more cellulose than any of the other roots mentioned. It is cooked in various ways and is largely used in salads and pickles.

The onion is remarkable for its strong smell and taste, due to a minute quantity of volatile oil and sulphur. It is not very nutritious, but more so than the turnip. It is used quite extensively however, both as a vegetable and flavor for other foods, and is a wholesome and palatable food. In its unripe or green state it is used as other green vegetables and also as a constituent of various salads.

The green vegetables, such as cabbage, cauliflower, spinach, tomatoes, lettuce, asparagus and celery, like some of the roots and tubers are of comparatively low nutritive value, but they all contain important salts. They are greatly improved by cultivation and if eaten in their young and tender state before the cellulose has hardened, are comparatively easy of digestion.

FRUITS.

Fruits are important additions to the dietary, their positive nutritive value is low, but they contain valuable salts, a considerable quantity of sugar (notably the grape) and a very small proportion of nitrogenous matter. Many fruits also contain a jelly like substance called *pectin*. Fruit is especially useful in the dietary of persons who have a tendency to constipation and to the gouty condition. The salts upon which their chief value depends are combinations of vegetable acids with alkalies, particularly potash. Fruits are also exceedingly valuable as anti-scorbutics.

The popularity of fruits as an article of the dietary is due, however, rather to their refreshing taste and the stimulus they give to weak appetites than to any nutritive value which they possess. Dried fruits are relatively more nutritious; they contain a larger proportion of sugar and less water.

Lemons, oranges, apples, peaches, prunes, raisins and currants are used in the Marine Hospital ration.

SUGAR.

Grape sugar or glucose is found in all sweet fruits, but the sugar contemplated in the food supply table of the Marine Hospital service is the more familiar kind derived from the sugar cane and known as cane sugar. Cane sugar is valuable as a food, but is chiefly used in addition to other foods to sweeten and render them more palatable. It is however not absorbed until through the process of digestion it is converted into grape sugar.

Molasses is the fluid portion left after the crystallized sugar has been separated from the juice.

Salt, pepper and vinegar are used as condiments. Salt (chloride of sodium) is the most important. It is not only useful and necessary as a condiment but it also aids digestion.

According to Church, it "suffers certain changes in the human body, and is not merely taken to be excreted. Its chlorine helps to furnish the hydrochloric acid of the gastric juice and the chlorine of the chloride of potassium found in red blood corpuscles and in muscle. Its sodium forms part of the soda salts, which are among the characteristic consituents of the bile, and of the phosphate of soda of the blood."

Vinegar is extensively used in sauces and salads of various kinds, and in the preparation of pickles.

TEA.

Tea is consumed in the form of an infusion, habitually or occasionally in nearly all civilized nations. It has very little nutritive value, but is a stimulant to the nervous system.

It contains an essential oil and an alkaloid (Theine) upon which its stimulating effect depends. Taken in moderation "a spoonful for each person, and one for the pot" in a weak infusion it proves a refreshing and wholesome beverage. A strong infusion has an inhibitory effect upon peptic digestion.

According to Yeo, "adding a little carbonate of soda, ten grains to one ounce of the dry tea leaf, has the effect of entirely removing the retarding effect on digestion."

Black tea according to Church, contains less theine, essential oil and tannin than green tea. Good average black tea contains

Water	8.
Albuminoids	17.5
Theine	3.2
Tannin	17.5
Chlorophyll and resin	4.5
Essential oil	0.4
Minor extractives	8.6
Cellulose, etc.	34.0
Mineral matter	6.3

COFFEE.

Coffee is not used in the raw state. It is first roasted and then made into an infusion or decoction. It is also sometimes prepared by the process of percolation. The choice varieties are Mocha and Java. Coffee contains an alkaloid, caffein, which is identical with the theine of tea, (by some authors the same term is applied to both) and an aromatic oil. This oil is developed by roasting, and, being volatile,

it rapidly changes or deteriorates; for this reason, coffee should not be roasted long before it is used, and the grinding should be done immediately before the infusion is made. Coffee is a nervous stimulant and strong decoctions are decidedly inhibitory to stomach digestion, and should never be taken after meals by persons inclined to dyspepsia; but in this like in all matters pertaining to diet, habit must be overcome gradually.

It is however, proper to add that Roberts in his recent work takes the ground that tea and coffee subserve useful purposes to the human economy; and he defends with a great deal of ingenuity his apparently paradoxical proposition that these beverages are consumed in part with the unconscious purpose of retarding digestion. Nevertheless, he says, "Differences of constitution and personal idiosyncracies have to be reckoned with; and there are frequently good, indeed paramount reasons why individuals should in some particular or other, depart from the general dietetic plan."

Coffee is a very common cause of insomnia, and is occasionally used as an antidote in opium poisoning. In the weaker infusion or decoction, especially if taken with cream and sugar, it is as a rule pleasant and agreeable and decidedly nourishing.

The composition of coffee and tea is very much the same, but they differ somewhat in the relative proportions of their constituents. Perhaps the most important constituent of tea and coffee as prepared in the diet table, is the water — the sterilized water. All articles of the dietary contain water, but an additional quantity is necessary not only as a carrier of food in the process of digestion and assimilation, but also as a solvent and carrier of waste products which have to be removed from the body. Water forms about two-thirds of the human body. The proportion of water to perfectly dry food, according to best authorities, should be as four to one. Vital action is impossible without water. Most drinking waters contain mineral matter or salts dissolved in them, chiefly carbonate of lime, but also sulphates, chlorides and nitrates of sodium and magnesium. These salts are also found in vegetable and animal food supplies, but the chloride of sodium in solid food is always deficient in quantity and must therefore be purposely added—while if found in any considerable quantity in drinking water it is evidence of sewage contamination.

In the chemical and physiological classification of food, water and the salts or mineral matter constitute the group of incombustible or oxidized compounds. The combustible or oxidizable group include the carbon compounds, such as starch, dextrine, sugar, and fat, and these are termed "heat givers" or "force producers." Gum, mucilage and pectose are of similar chemical composition though probably of less nutritive value.

The nitrogen compounds or albuminoids constitute another group known as "flesh formers." The chief members of this group are albumin, casein and myosin—also gelatine and chondrine from the animal, and gluten and legumin from the vegetable kingdom.

"One of the main functions of mineral nutrients is to aid in the transference, absorption and elaboration of the oxidizable nutrients—somewhat after the same manner that a scaffolding aids the construction of a building. The same or similar offices are performed in plants by the mineral matters they contain." (Church.)

With the foregoing named articles of subsistence and a few others not specifically mentioned, such as macaroni, vermicelli, sago, tapioca, gelatine, etc., the following diet table was adopted a number of years ago.

I.—ORDINARY DIET-TABLE—UNITED STATES MARINE-HOSPITALS.

Sunday.

Breakfast; Chocolate, 1 pint; bread, 6 ounces; butter, ½ ounce; meat-stew, 4 ounces; fruit sauce, 3 ounces.
Dinner: Soup, 1 pint; beef roast, 6 ounces; potatoes, 8 ounces; other vegetables 4 ounces; rice or tapioca pudding, 4 ounces.
Supper: Tea, 1 pint; bread, 6 ounces; butter; ¾ ounce; mush and milk, 12 ounces.

Monday.

Breakfast: Coffee, 1 pint; bread 6 ounces; butter ½ ounce; meat-hash; with vegetables, 6 ounces; stewed fruit, 3 ounces.
Dinner; Vegetable soup, 1 pint; beef boiled, 6 ounces; potatoes, 8 ounces; pudding with sauce, 4 ounces; bread, 4 ounces.
Supper: Tea, 1 pint; bread 6 ounces; butter, ½ ounce; fruit sauce, 3 ounces.

Tuesday.

Breakfast: Coffee, 1 pint; bread, 6 ounces; butter, ½ ounce; corned beef hash, with potatoes, 6 ounces.
Dinner; Beef soup, 1 pint; beef boiled, 6 ounces; fish, fresh 6 ounces; vegetables, 8 ounces; bread, four ounces; fruit 4 ounces.
Supper: Tea, 1 pint; bread, 6 ounces; butter, ½ ounce; *fruit, stewed 4 ounces.

Wednesday.

Breakfast: Coffee, 1 pint; bread, 4 ounces; butter, 2 ounces; fish-hash with vegetables, 6 ounces.
Dinner: Mutton broth, 1 pint; mutton boiled, 6 ounces; potatoes, 8 ounces; rice pudding with sauce, 4 ounces; bread, 4 ounces.
Supper: Tea, 1 pint; bread, 6 ounces; butter, ½ ounce; cooked fruit, 4 ounces.

Thursday.

Breakfast: Coffee, 1 pint; bread, 6 ounces; butter, ¾ ounce; meat-stew, 6 ounces.
Dinner: Soup (boullion), 1 pint; beef roast, 6 ounces; potatoes, 8 ounces; bread, 4 ounces; fruit, 4 ounces.
Supper: Tea, 1 pint; bread, 4 ounces; butter, ½ ounce; fruit pudding, 4 ounces.

Friday.

Breakfast: Coffee. 1 pint; bread, 6 ounces; butter, ½ ounce; fish-hash with vegetables, 6 ounces.
Dinner: Vegetable soup, 1 pint; meat-stew, 8 ounces; fish, 6 ounces; bread, 4 ounces; vegetables, 8 ounces; fruit, 4 ounces.
Supper: Tea, 1 pint; bread, 4 ounces; butter ¾ ounce; cold meat, 4 ounces.

Saturday.

Breakfast: Coffee, 1 pint; bread, 6 ounces; butter, ½ ounce; mutton chop, 6 ounces; fried potatoes, 3 ounces.
Dinner: Barley soup, 1 pint; mutton boiled, 8 ounces; bread four ounces; vegetables, 10 ounces.
Supper: Tea, 1 pint; bread, 4 ounces; butter, ¾ ounce; rice with sauce, or syrup, 4 ounces.
* Fresh fruit may be substituted in season.
NOTE.—The tea and coffee prepared with milk and sugar. The quantities of the articles of diet indicate them as they are prepared ready to serve.

II.—EXTRA DIET.

Breakfast: Mutton chop or beefsteak, 6 ounces; eggs, 2.
Dinner: Chicken or game, 6 ounces; ale or wine.
Supper: Dry or dip toast, 4 ounces.

III.—MILK DIET.

Breakfast: Hominy or corn-meal mush, 14 ounces; milk, 16 ounces.
Dinner: Rice or tapioca (cooked), 12 ounces; milk, 16 ounces: syrup, 1 ounce; bread, 4 ounces; butter, ½ ounce.
Supper: Cracked wheat or oaten-gritz, (when cooked) 14 ounces; toasted bread, 12 ounces: milk, 16 ounces.

In a note accompanying the ordinary diet table it is officially stated that this "table gives the four classes of solid constituents in substantially the following proportions:

Nitrogenous or plastic material, about one hundred and forty grams; fat, about sixty-two grams; carbohydrates, (starch, sugar, etc.,) about four hundred and fifty grams, and salines, about twenty-six grams; and with about two thousand and two hundred and fifty grams of water. Although these quantities are somewhat in excess of the estimates for "healthy adults at rest," they are none too great for convalescents in whom tissue metamorphosis is being carried on, not only in the interest of repair of present waste from use, but in the interest of repair of past waste from disease, a point which should not be overlooked in the construction of hospital dietaries. In making any changes from the above, the substituted article should be in such quantities and of such kinds as to furnish constituents equivalent to those of the articles replaced."

Recognition is made of the fact that climate and season may render modifications necessary.

In my own experience, substitutions are not so frequent as changes in the relative proportions of some of the articles, notably milk and eggs, which are consumed in greater quantity than given in the supply table, while a reduction is not infrequently made in the meat allowance.

But without regard to any change in the articles or quantities of subsistence, it is proper to state that the quality of the various articles of food supplies as given by the analyses quoted in the foregoing description of each, is probably better than that upon which the official analysis of the diet table was originally based. At any rate, careful calculation of the composition of the articles named shows even larger proportions of nutritive constituents than given in the official note.

REPORT OF FOUR HUNDRED CASES OF INTUBATION OF THE LARYNX, WITH PRACTICAL DEDUCTIONS.

Read in the Section of Diseases of Children, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY F. E. WAXHAM, M.D.,

PROFESSOR OF LARYNGOLOGY, RHINOLOGY AND DISEASES OF CHILDREN, COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

Intubation of the larynx has been so frequently and unfavorably compared with tracheotomy that I feel it my duty to report the cases coming under my observation, and to point out some of the reasons for unfavorable results.

It has been my experience, largely through the courtesy of my confreres, to have now operated on something over four hundred cases, with results that might well make any one an enthusiastic supporter of the operation.

It should be remarked that these operations were performed in private practice in a large city and its suburbs, *without selection*, upon all cases dying from laryngeal obstruction, without reference to age, malignancy of disease or unfavorable surroundings. It must be remarked also that a great many of these cases were experimental cases, and many could have been saved with the more modern instruments and with the judgment and skill coming with larger experience.

RECORD OF CASES.

Age (under)	1	year.	12	cases.	4	recoveries.	33⅓	per cent.
"	1	"	52	"	12	"	22.07	" "
"	2	"	70	"	18	"	25.71	" "
"	3	"	69	"	27	"	39.10	" "
"	4	"	79	"	30	"	37.97	" "
"	5	"	39	"	18	"	46.15	" "
"	6	"	25	"	7	"	28.	" "
"	7	"	25	"	10	"	40.	" "
"	8	"	10	"	6	"	60.	" "
"	9	"	6	"	3	"	50.	" "
"	10	"	5	"	2	"	40.	" "
"	11	"	1	"	1	"	100.	" "
"	12	"	2	"	0	"		" "
"	13	"	1	"	0	"		" "
"	14	"	1	"	0	"		" "
"	43	"	1	"	1	"	100.	" "
"	20	"	1	"	0	"		" "
"	60	"	1	"	0	"		" "
			400	cases	139	recoveries	34.75	per cent.

It should be observed that of these cases 134 were under the age of 3 years, with recoveries amounting to 25.37 per cent., an age at which tracheotomy is rarely successful. It will be observed that in the first hundred cases there were twenty-seven recoveries, in the second hundred thirty-four, in the third hundred forty, and in the fourth hundred thirty-eight. Improved instruments, improved methods of feeding, greater watchfulness and judgment in the management of cases, and the almost universal administration of the bichloride of mercury after the first hundred cases, undoubtedly accounts for the larger ratio of recoveries.

Why is it that we so frequently hear of unfavorable experiences?

1. On account of the difficulty of the operation.
2. Because judgment is not exercised in the selection of the proper tube.
3. Patients are frequently allowed to die from obstruction below the tube which in many cases can be overcome.
4. On account of the absence of careful nursing and the most watchful attention.

Undoubtedly this operation requires more delicacy of "technique" than almost any other operation in surgery. The operation is a far more difficult one than tracheotomy, and few there are who can properly do it without long and special training. It is an operation for the specialist, the expert and those especially dextrous, if best results are to be obtained. Too frequently operators without special aptitude and with no training whatever attempt the operation, the result is disastrous and after a few trials the operation is denounced. In every city this work should be done by one or two operators, who should spare no effort in becoming skilful, and by doing all these operations would soon acquire sufficient experience to insure splendid results. In country districts or in small towns where the operation is not often required, tracheotomy will be found to be far more satisfactory, as no one can become skilful or maintain confidence in doing the operation on two or three cases a year. The result will depend in no small measure upon the judgment displayed in the selection of the proper tube. To introduce a large and tightly fitting tube that cannot be expelled in case of obstruction below it, and to leave the patient in fancied security, is to cordially invite disaster. A loosely fitting tube should be employed, and no harm is done if it is expelled every day, providing the operator replaces it, as he should, gently, skilfully and with no injury. If a

tube is rejected several times a day a somewhat larger one should be used. The attendants should always be instructed that in case of emergency from sudden occlusion of the tube the patient should be inverted, and if by shaking the child in this position the tube is not expelled, the finger should be forcibly placed upon the trachea below the tube, when it can be crowded out.

Many a case can be saved by the removal of a tube on the first indication of membrane below it. The indications of partially detached membrane below the tube are very apparent and should not be heedlessly overlooked. The occurrence of a hoarse squeaking cough, with sometimes a decided flapping sound in the trachea, should call for the immediate removal of the tube. When this is done, the expulsive cough that follows will in a great majority of cases expel the membranous cast causing the obstruction. In this manner I have often secured complete casts of the trachea and even larger bronchial tubes, of which these specimens are but a few examples. By a little persistence it will rarely happen that these casts cannot be secured just as effectively as by a tracheotomy.

The success of the operation does not depend simply upon the ability of introducing a tube into the larynx. The careful nursing and feeding and the faithful continuation of treatment, as well as prompt interference in case of emergency, are most important factors in the successful management of a case.

But little difficulty is usually experienced in feeding the patient in the inclined position. In the absence of a trained nurse the physician himself should personally superintend the matter of feeding, otherwise insufficient nourishment will be given. I have often been able to give a half a pint of milk to a patient without difficulty when parents have declared that it was *impossible* to "get anything down." It is extremely important to continue with the same line of treatment after the operation that was instituted before. Of these measures I believe the most important to be the use of the steam atomizer, the internal administration of iron and bichloride of mercury in frequent full doses, and local disinfection. The most efficient local antiseptics and those giving me the greatest satisfaction have been the bichloride of mercury and peroxide of hydrogen.

To recapitulate: In order to obtain the most satisfactory results, the operation should be performed only by those who by special aptitude and careful training are capable of doing it quickly, gently and skilfully.

The greatest judgment should be exercised in the selection of the tube. Emergencies should be promptly met, the case carefully watched, and every detail of management carefully considered.

240 Wabash Ave.

ACUTE BRONCHITIS IN CHILDREN.

Read in the Section of Diseases of Children, at the Forty-third annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY C. L. DODGE, M.D.,
OF KINGSTON, N. Y.

Certain anatomical peculiarities of the child's lung deserve attention before entering upon a description of the acute affections to which it is most frequently subject. These peculiarities are of embryonic type, and are present to a greater or less extent up to the fifth year. In the fœtus the bronchial tubes are relatively large, while the alveoli are mere bud-like dilatations, "as if Nature had laid out a bronchial tree of generous proportions at the outset, to meet the demands of new-born existence and allow for its subsequent growth." The connective tissue in the fœtal lung is everywhere a delicate meshwork, but loosely retaining the bloodvessels, tending to abundant cell-proliferation, and occupying a far greater relative space than in the adult,—the air vesicles and intervening connective tissue being about equal in extent. The lining membrane of the bronchial tubes, with its rich net work of capillaries, is but loosely bound to the muscular walls, and lies in folds. The alveolar walls are thick, and their structure comparatively loose and yielding; their inner surfaces readily shed and proliferate epithelium, as does the bronchial mucous membrane; moreover, the cells in both instances are relatively larger than those of an adult lung. The blood-vessels, being loosely restrained, readily dilate and encroach upon space properly belonging to the alveoli, and readily cause partial collapse. The thoracic walls are soft and yielding, while the muscles of the throat, bronchi, and chest are relatively less developed and far weaker than in the adult. These peculiarities (which, of course, gradually become less marked after birth as age advances) should be borne in mind, as showing the ease with which serious encroachment upon respiratory space may take place in certain inflammatory conditions.

By the fifth year, in a healthy child, the loose connective tissue has become condensed, properly restraining the capillaries and binding the bronchial lining much more firmly to the walls. New alveoli have been produced, and the proper relative capacity of the air-spaces to the bronchial tubes has been established. The lung has now become anatomically adult, although it still preserves in a measure its faculty of easily shedding epithelium.[1]

Inflammation of the bronchial tubes or bronchitis is one of the most common diseases of early life, and no disease in the nosological list presents greater variations as to type and severity than bronchitis as it occurs in infancy and childhood. It is a matter of common observation for children to pass through the stages of acute bronchitis of mild grade with no medical treatment whatever, and on the other hand we know when abnormally severe it is justly one of the most dreaded diseases of childhood. Bronchitis proper, that is inflammation of the larger tubes, is a more frequent disease than is generally supposed. While I believe with Dr. Morrill that "bronchitis" is credited as a cause of death among children in many cases where the correctness of the diagnosis is open to doubt, I also believe that many cases of bronchitis are diagnosticated, or at least termed inflammation of the lungs. It is well known that bronchitis, among the laity is considered to be a species of throat disease, sub-acute or chronic in character; now to tell many parents holding these views that their child is suffering from bronchitis, when all the symptoms point to a severe acute disease, is to raise suspicion in their minds at once as to the correctness of the diagnosis. Consequently many physicians call every severe case of bronchitis, inflammation of the

[1] Dr. F. Gordon Morrill, in Keating's Cyclopædia, to whom I express my thanks for the free use which I have made of his paper.

lungs on general principles. In making out the death certificate many, no doubt, will put down the true cause of death, but when the patient recovers it is from the more serious affection, inflammation of the lungs, the same as it is often with alleged cases of diphtheria; recovery in these cases being a most fortunate result, while in case of death it was no more than was to be expected.

Etiology.—The cause of acute bronchitis in most instances is sudden change of temperature from warm to cold, exposure to cold and damp or to currents of air, popularly termed a draught, insufficient clothing, wet or damp feet, sitting on the damp ground, etc. This is not the only disease occasioned by the action of cold; diarhœa and cystitis frequently occur when no other cause can be assigned. Climate undoubtedly plays an important rôle in its production, it being most prevalent in countries which are subject to frequent and sudden changes of humidity and temperature. It is said to be rare in the arctic regions in winter, which would seem to prove that extreme or prolonged cold was not a factor. The Eastern and Middle States furnish many cases of this affection, and in New York bronchitis is much more prevalent during the winter and spring than at other seasons of the year. I believe bronchitis to be more frequent among the children of the poorer classes and the affluent, than among the middle classes. This is owing to the fact that the children of the poor are often insufficiently clothed, poorly housed and fed, and generally neglected so far as protection from vicissitudes of the weather are concerned. With the wealthy it is because of too great care on the part of the parents. Over-heated, ill-ventilated houses are responsible for many attacks of bronchitis. Often in addition to the foulness of the air from natural causes there is added the poison of coal gas from a defective furnace. Children brought up under these conditions, carefully housed and over-clad soon become delicate and fragile, veritable hot-house plants, that are sensitive to the slightest change and susceptible to the slightest chill. The exposure of these children for the briefest time to draughts or chilling winds, is sure to be followed by an attack of bronchitis, croup or tonsillitis. The period of first dentition is one during which many children suffer from bronchial troubles. Jacobi believes that the dampness arising from the constant drooling of some babies constitutes an important cause. Measles and whooping cough are usually accompanied by bronchitis, and in these cases the first named diseases are to be considered the cause of the bronchitis. Sex appears to exert no influence.

Pathology.—The late Dr. Flint sums up the pathology in four lines. Although brief, it covers the ground, and I cannot do better than to reproduce it: "Acute ordinary bronchitis is an inflammation affecting a mucous structure, leading to a secretion of mucous and the production of muco-pus in greater or less abundance. Resolution takes place in this situation without the occurrence of ulcerations. It belongs among the symmetrical diseases."

Symptoms.—I shall first give a description of this disease as it occurs in infants, and then as we observe it in older children. The symptoms of bronchitis differ much in degree, from a slight cough and indisposition hardly noticeable, to the severe attacks denominated capillary bronchitis, from which few recover. In young babies and children under five the disease usually commences with coryza or in common parlance "cold in the head." This is not invariably the rule, however, for we sometimes notice abrupt seizures similar to attacks of pneumonia or croup. In addition to the usual symptoms of coryza such as sneezing, defluxion from the nostrils, etc., there is a dry, harsh, paroxysmal cough, sufficient to prevent the child from sleeping in many cases. The respiration is somewhat accelerated and nursing babies are made cross and fretful when attempting to nurse from the inability to breathe readily through the nose. They are obliged to let go of the nipple from time to time to take a breath, and then resume their meal again. The amount of fever in these mild cases is slight; the temperature perhaps will not rise above 99° F. The pulse is more affected, and from the increased frequency of the respiration and the nervousness and excitement consequent upon the disorder, may rise to 120 or 130 in the minute.

In the more severe cases the child is plainly sick. It wants to be rocked, or carried continually; cries and worries at the approach of strangers, and refuses to play or be amused in any way. The fever in these cases is considerable but must not be estimated by the rapidity of the pulse which is usually 160, and often as high as 200 per minute. The temperature, which alone, is to be relied on in these cases as to the severity of the febrile process rarely reaches 103° F. in simple uncomplicated bronchitis. A fair average would be 101° to 102° F- The skin is dry, hot, and burning to the touch, and the cheeks are flushed. The respiration is very rapid. The cough is dry, harsh and persistent, and after a time somewhat painful. The expectoration—which in babies is a misnomer—is scanty and consists of a little viscid mucous which is swallowed the moment it is coughed up. The tightness persists for some days unless appropriate treatment be instituted, and is a source of much annoyance and suffering. Mild attacks terminate in a week, but where at all severe the disease is apt to last longer, that is the principal symptom, which is the cough. In older children we observe some deviations from the description given above. A child of six or eight is able to expectorate and to describe his feelings. There is no expectoration at first, but after a day or two, especially if treatment has been instituted early, the cough loosens and the phlegm is raised with little effort. The child complains at first of tightness and constriction across the chest, with a scraping sensation beneath the sternum on coughing. After the cough has lasted several days, most children who are old enough to talk, will tell us that they have pain in the stomach —the result of traction on the diaphragm, from the persistent coughing. There is also more or less laryngitis present, with pharyngitis of mild grade in many cases. This gives rise to a sense of tickling in the throat which provokes a desire to cough almost constantly where the local irritation is pronounced. Many cases of bronchitis in children of this age begin as laryngitis and extend down by continuity of structure. The fever is not so high with older children, nor is the respiration so rapid. Capillary bronchitis, so-called, will not be considered in this article as I have limited myself to a consideration of acute bronchitis proper, and stated in the beginning that this is intended to apply only to inflammation of the large bronchial tubes.

Diagnosis.—In mild cases of bronchitis the diag-

nosis is easy. The characteristic cough attended with but little pain; the rapid breathing; the moderate amount of fever, and the slight constitutional disturbance render the case sufficiently plain. But where the attack is severe, and the smaller bronchial tubes—but not the smallest for then we have another disease, broncho-pneumenia—are involved and great constitutional disturbance is present, the diagnosis becomes more difficult and careful physical examination is necessary to enable us to distinguish between bronchitis and certain other diseases with which it is liable to be confounded. These are croupous pneumonia, broncho-pneumonia, pleurisy and laryngitis occurring singly.

From beginning croupous pneumonia, bronchitis may be distinguished by its gradual rather than its sudden onset; its milder febrile symptoms; its absence of vomiting, epigastric pain, convulsions, and delirium, some of which are present in the majority of cases. In uncomplicated bronchitis there is absence of dulness. Croupous pneumonia, as we know, is attended with consolidation of the pulmonary tissue. Bronchitis is a bilateral or symmetrical disease; in this respect it differs from pneumonia. Râles of all kinds are heard in various portions of the lungs during the progress of the disease except the fine crepitant râle, which is pathognomonic of croupous pneumonia. This, however, is not always present, or at least cannot always be detected in young children. The absence of the expiratory moan is also against pneumonia. Finally, in the latter stages of pneumonia, dulness becomes marked, dilatation of the nostrils and bronchial respiration are present and the distinction becomes manifest. From broncho-pneumonia the differential diagnosis is often difficult, and at times impossible. Broncho-pneumonia, however, is not as some suppose, croupous pneumonia complicated with bronchitis, a sort of combination, so to speak, like the equally vague and uncertain term typho-malarial fever. Broncho-pneumonia is a disease which involves the connective tissue, bronchioles, and air cells. It is very common among children under five years of age, and its mortality is large. It is believed by some of the best observers that a majority of deaths credited to bronchitis are really due to broncho-pneumonia. With this opinion I concur. Now, how can we discriminate between acute bronchitis of severe type and broncho-pneumonia? As stated above, this is not always possible, but attention to the following points of dissimilarity will materially assist us to do so. First, high temperature 102.5° to 103° F., with considerable dyspnœa points strongly to broncho-pneumonia, as does also a marked degree of prostration. Severe constitutional symptoms are rarely present in uncomplicated bronchitis, and when found are of short duration. Ziemssen says that elevation of temperature always takes place if catarrhal pneumonia supervene upon catarrhal bronchitis; in the latter disease it seldom reaches 102.5° F., while in catarrhal pneumonia it often mounts to 105° F. in a few hours. At the same time the pulse becomes more frequent, the face redder, and the child evinces great terror and restlessness, or in severe cases, soon falls into a state of apathy and somnolence.

The physical signs are not always trustworthy. "Theoretically speaking, broncho-pneumonia may be distinguished from bronchitis by the dulness on percussion; practically this aids but little. Dulness on percussion is in children difficult to elicit; and again, a dulness may be temporarily produced in capillary bronchitis by collapse of the pulmonary tissue. There are therefore, no absolute signs of difference," (Da Costa).

A word as to capillary bronchitis. Modern writers, particularly those who study the pathology of this disease carefully and have access to the post-mortem records, are gradually abandoning the term capillary bronchitis, and substituting broncho-pneumonia, as the correct and appropriate designation for this condition. It is to be hoped that writers will soon cease to employ this term as it is misleading and confusing in the extreme. From pleurisy, bronchitis is distinguished by the superficial respiration, the stitch-like pain in the side on coughing and the expiratory moan. Later, physical signs present themselves which are unmistakable. Furthermore, acute pleurisy is not a common disease in children. In laryngitis there is always hoarseness, very little fever and but slight constitutional disturbance, except in the spasmodic form or false croup. Here the peculiar "croupy" cough is pathognomonic. Once heard it is never forgotten. There is also absence of râles.

Prognosis.—In uncomplicated cases of acute bronchitis where the inflammation is limited to the large tubes the prognosis is favorable. Since most cases of broncho-pneumonia, however, begin as simple bronchitis, the bronchioles and alveoli becoming involved later, it is well to give a somewhat guarded prognosis in all cases where the sanitary surroundings are not first-class or where proper care and nursing are unattainable. As stated above it is extremely probable that in very many cases bronchitis is credited as a cause of death among children when the true cause was broncho-pneumonia, often incorrectly termed capillary bronchitis.

Treatment.—While bronchitis cannot be cured by medicine in the sense that malarial fever is cured by quinine, yet I know of but few diseases in which appropriate treatment is followed more quickly by relief from distress and suffering. In mild attacks very little medicine is ncessary but it is quite important that this little be selected with care. Expectorants are remedies that stimulate secretion from the bronchial or laryngeal mucous membrane; in plain English, that loosen or cut the phlegm so that it can be "raised" and expectorated. Great confusion appears to exist in the minds of most young practitioners with regard to this important class of remedies. Among no class of disorders do we see more diversified treatment than in bronchitis, acute and chronic. No better evidence of a man's knowledge of therapeutics can be given, than his ability to prescribe correctly for a cough, be the cause whatever it may. Cough mixtures are frequently constructed on the shotgun principle of hitting something. "Stimulating expectorant" is an unfortunate term. To the beginner, the man without experience, it conveys a false meaning. To stimulate expectoration in the treatment of cough, is the great desideratum in the opinion of the masses, both in the profession and among the laity. But do the so-called stimulating expectorants really increase the secretion from mucous membrane lining the air passages?

Surely squill, senega, ammonia, etc., do not in the early stages; they are simply worse than useless here. Ipecac, tartar emetic and opium, are the rem-

dies in the first stage where the bronchial mucous membrane is swollen, congested and dry, and secretion is arrested or more correctly, is deficient. Nevertheless, a large proportion of the cough mixtures dispensed for a tight cough will be found to contain squill.[2] The opinion has been held from time immemorial that a tight cough forbids the use of opium. No greater error was ever promulgated. To my mind the following quotation from the late Austin Flint is replete with wisdom: no truer words were ever spoken; and the amount of suffering that has been averted by this teaching is simply incalculable. He writes as follows[3]: "Opium is thought by many to be contraindicated in the first stage (bronchitis). It is supposed to interfere with the free secretion of mucous and render expectoration difficult. This is an inference from the effect of opium on the secretions in health; but, so far from these results being produced, opium appears to hasten the second stage. The free secretion of mucous is not the *cause* but the *consequence* of an abatement of the inflammation; and by contributing to the latter, opium virtually acts as an expectorant. Opium, therefore, is indicated in the first stage of bronchitis, as it is in most acute inflammations." This reasoning applies to children equally as well as to adults. Antimony should never be prescribed for very young children as an expectorant, for the same reasons that prohibit its employment as an emetic. The so-called stimulating expectorants as squill, senega, and carbonate of ammonia are inadmissible until free secretion has been established; they are useful in those cases where the circulation is feeble and the patient weak, and where the cough—for there is no voluntary effort on the part of a little child—seems inadequate to the removal of the bronchial secretions. In all severe cases the child should be kept in bed. The temperature of the room should be kept uniform at about 70° F. The child's chest should be well rubbed with a mixture of equal parts of camphorated oil and oil of turpentine as hot as can be comfortably borne. Immediately afterward the chest should be covered with cotton wadding to which a piece of oil-silk has previously been loosely stitched, this to be retained in position by a muslin band or binder. It should be left on and not disturbed until the child has recovered from all acute symptoms. This is far preferable to the wet and nasty poultices that we were formerly taught to use as a routine practice. In most cases a cathartic is indicated and the old mixture of castor oil and molasses which has been used thousands of times has no superior. Many mothers, however, decline to employ it, and in these cases we must resort to something else. Calomel in $\frac{1}{10}$ grain doses in the form of tablet triturates administered every hour till the bowels act, is a pleasant and effective purgative. It may be supplemented by a dose of citrate of magnesia or compound liquorice powder, in older children. For the cough which is the most distressing symptom, there is nothing to be compared to paregoric in doses proportionate to the age. The following formula has served me well:

℞. Fl. ext. ipecac gtts iv.
Paregoric ʒj-jj.
Syr. tolut ad. ʒjj. ℳ. S.

Take one teaspoonful every two hours till cough becomes looser or less frequent.

This in many cases with the purgative, will be all the medicine required. If, after the use of this prescription for twelve or twenty-four hours the cough does not loosen and become softer, the amount of ipecac should be increased. One-half drop of the fluid extract is not too much to give a baby with a very tight cough and a dry, non-perspirable skin. It need not be kept up however, in such large doses. I do not believe that it is necessary to keep a child "constantly on the verge of emesis" to prevent an ordinary bronchitis from becoming "capillary." It is much better practice to reduce the quantity of ipecac as soon as expectoration becomes easy, which, in the child means only the ability to "raise" easily and without effort. From this time forward a mixture like the one above with the ipecac entirely omitted will be of more service in the majority of cases than any complex formula containig ammonia with one or more of the so-called stimulating expectorants. In those severe cases where the cough is suppressed or in danger of becoming so, then opium is risky for the time being, and we must resort to those remedies that tend to stimulate cough and the respiratory centre, such as ammonia, senega, strychnine or nux vomica, digitalis and liberal doses of alcohol in the form of French brandy or good whisky. Except in these cases they are rarely needed in acute bronchitis. As to emetics, I rarely prescribe them for this disease except under the following conditions. First, in a robust child when seen early with a full, rapid pulse, and a dry, hot skin; here the constitutional effect of the emetic is often markedly beneficial. The nausea induces relaxation and the depressing effect on the circulation relieves the febrile symptoms. The other indication for their employment is where the child's strength seems inadequate to raise or expectorate an accumulation of mucus which threatens suffocation; but even in these cases the emetic should not be repeated too frequently as the depression which follows is ill-borne.

THE RELATION OF DRUGGIST AND PHYSICIAN.

Read at the June meeting of the Ramsey County Medical Society, St. Paul, 1892.

BY CHARLES L. GREENE, M.D.,
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Gentlemen: This nineteenth century is pre-eminently a period of advance in thought and practice. Even theology has been forced to abandon many of her strongholds and adapt herself to changed conditions. Science has exposed many fallacies and unfolded a multitude of new truths. Medicine has upheld her standard well in the front ranks and shown men how to prevent and disperse diseases once deemed a necessary and inevitable penance for the race. In short all departments of learning have conformed to the requirements of the active, inquiring, analytic nineteenth century brain. Whither this spirit of intelligence will ultimately lead us we cannot know, but in medicine, at least, we will set no limits or boundaries to the onward march of its intelligence and the intellectual and moral light which is to illuminate for us all the dark nooks of our chosen and beloved profession. Looking back upon the work of our early predecessors with a feeling

[2] From personal knowledge acquired in my early days as a retail pharmacist, I can vouch for the correctness of this assertion. A favorite formula for coughs and colds of all stages with one of the leading physicians of a western city was syrup of ipecac, syrup of squills, and paregoric, each one ounce.

[3] Practice of Medicine, p. 210.

of deep wonder, not unmixed with repugnance, we cannot fail to be moved to admiration for the rough and sturdy nature, the patient and profound research which enabled them while groping in comparative darkness to build a broad and substantial foundation for that great superstructure, whose upper limits we cannot now begin to measure. We feel that we labor in a brighter light but yet we find here and there areas of darkness which the sun of our united intelligence has not yet dissipated. We find in our present habits and practice many halting discrepancies which can hardly be reconciled with our steady advance in other directions.

It is to one of these discrepancies that I wish to direct your attention in this paper without desire to pose as a critic and without claim to originality. Simply desiring to place before you facts which appear to me vital and to point out what appears like a parodoxical relation between our physicians and the pharmacists of the present day. In few departments of medicine have our advances during the past century been more marked than in the direction of the preparation and therapeutic application of drugs. Jalap, calomel, blue mass and similar old remedies are fast being relegated to the upper shelves, and newer, more definite and more elegant preparations are superceding the powders, syrups, infusions and decoctions of former days. The organic chemist is giving us yearly new and valuable products the physiological action of which we may often predicate from the grouping of their elements. Physiological chemistry is adding link by link to that grand chain which we hope is to show us eventually the marvellous sequence of changes undergone by body tissues in the various functional activities of the organism as well as the true and ultimate effect of agents administered by us with the view of modifying tissue life and activity. Hand in hand with these investigators works the scientific therapeutist in his endeavor to formulate definite laws for therapeutic application of drugs based upon the researches of his colaborors in the chemical and physiological laboratories. All of these branches of our science are young giants, as yet in their swaddling clothes but already giving abundant promise of a robust and virile manhood. Our professional environment then is continually changing, let us inqnire whether we are adapting ourselves to our changed conditions as by right we should. I believe that in many respects we are not. The bonds and fetters of custom and tradition are the most difficult of all to loose. They bind and restrain young and old alike from full freedom of thought and action. Within a few years we have had added to our weapons of offense and defense in our warfare against disease, new drugs potent in action, definite in results, and we have seen evolved from the cruder and more complex drug the infinitely subtle, pure and straight-forward alkaloid. With these have come new methods of preparation which enable us to administer our drugs with greater precision and quickness and with the least hardship to our patients.

In former days the physician could only carry his own drugs from house to house by employing a receptacle of the size of the modern saratoga, and must either dispense by guess or spend a large amount of his time weighing, dividing and directing. Now, however, he may carry all ordinary drugs for emergency or common ailments, in a small and compact case and dispense them as quickly as he could write a prescription, and with almost absolute precision and safety. He will often save life where it was formerly lost by delay, and always save time and money for his clients.

So with his office prescriptions. He was formerly obliged to have either a large drug stock and employ skilled help or waste much time in attempting to combine in himself the functions of physician and pharmacist. He was in danger of either poisoning his patient by overdosing or of being chagrined by utter lack of action in some ancient or improperly prepared product. To him then the druggist came as a true friend and helper. He saved his time and his patience, was a friend in council, and a fountain of authority in the various mysterious branches of pharmacy.

Truly then the druggist should be, and once was, the doctor's aid and faithful ally. He is the representative by descent of men who stood for advance and scientific endeavor. He it was who in past times made a study of so compounding and dispensing as to give the doctor and his patient the best results with the materials at hand. He carried uncomplainingly the immense stock of roots and herbs, metals base and fine, syrups, syringes and all that might satisfy the finical and fancied, or the real and urgent needs of the physician and his patient. Much of his stock was dead and much also of necessity decomposed and inert. Yet upon him the physician relied for a fresh and pure drug. He served as a valuable check for hastily written prescriptions and in many other ways comforted, aided and abetted the long suffering and hard worked medicus. But on his part the doctor returned often the evil for the good, for, not content with prescribing capriciously, he prescribed in characters which would be as Hebrew, Arabic or Chinese to the ordinary reader. He wanted syringes of a certain curve, drugs of an infinite variety and in many ways added his mite to the burdens of the suffering pharmacist. Perhaps it is that the trodden worm will ever turn, perhaps it is the simple logic of events, but the druggist has gradually been getting even with his tormentor. For of late years a surprising change has occurred in the mutual relations of the two men. The druggist is forced to keep in stock a multitude of almost worthless preparations. This means an accumulation of dead stock and that means large prices for drugs dispensed. The charge for a prescription bears almost no relation to the ingredients composing it. It is a charge which has for a basis what the traffic will bear and not the true basis of cost of ingredients. The rise of the great manufacturing houses has taken much of the scientific investigating spirit from the pharmacist and has nearly reduced him to a purely commercial basis. At the same time, strange to say, the educational qualifications required by statutory law are being constantly increased. The sale of patent medicines has been a great source of profit to the pharmacist and injury to the physician and has doubtless had much to do with the increase in druggist's establishments which has reached a point where it threatens ruin to many through excessive competition and helps to turn the pharmacist to desperate means for stemming the rising tide which threatens to overwhelm him. We see our apothecary stores, not dispensing pharmacies but salesrooms for a miscellaneous stock of perfumes, jacknives, toilet articles and such matters as would

seem to be but distantly related to the art and science of medicine, and coincidently and of necessity we see large and showy stores and a corps of assistants who seem to be occupied much more with the purely commercial than with the scientific aspect of the traffic. We can but feel that there is actual danger in the blending of these interests. That the man who is subdividing powerful and poisonous drugs should not be subject to interruption to sell a tooth-brush or glass of soda water to an urgent customer. Again arises the matter of dead stock. Why do we continue prescribing in powder form where the triturate gives us the same drug already prepared, equal in solubility and exact in dose? Why do we make the druggist a slave to our fancy for prescribing Brown, Jones or Robinsons' open formulæ, or closed formulæ, preparations which are no better than his own but oblige him to buy a large package only a fractional part of which is to be used? We may prescribe hypophosphites and pepsins of different make for each day in the year, and our patient and the druggist will suffer for our poor judgment. It all leads to accumulation of dead stock and that leads to high prices and unreliable products. How often does the doctor prescribe a drug, as cascara sagrada, in proper dose without effect, and upon another occasion get an exhaustive and exhausting action from the same in larger dose bought of another pharmacist. The patient is promised a gentle laxative effect, in both cases he is disappointed and blames his doctor. The doctor knows full well that he has had an inert or bastard product in the first instance and that in the latter a new or reliable preparation was obtained. Then how the fortunate possessor of a successful remedy rejoices in the possession of his prescription. That solitary dollar of his purchases medicine for his immediate and remote family connections and their friends, and ever and anon the simple formula returns to the well to be refilled. To blame the druggist for this at the present time would be unfair because the court of law decides it legal, yet the custom of past years was probably the basis for such a decision. Some things, however, are indefensible; counter prescribing is one of them. Our present laws are utterly insufficient to check this abuse. We should have such a law as would make it easy to convict and imprison all men perpetrating this wrong against the community.

There is a striking incongruity in making a high and rigid legal standard of requirement for the practice of medicine in this State, while at the same time men criminally ignorant of medical science are able to dispense over their counters the most powerful of our drugs for the relief of symptoms which they must necessarily be unable to interpret. Again, there is the manufacture and sale of cure-alls over the counter—cure-alls in some instances based upon the prescriptions of the very men whose patronage the druggist is soliciting.

As regards the sale of patent medicine no comment is necessary. The business is dishonorable to a scientific man if not to all who indulge in it. Most of the articles dispensed are fraudulent, and by false promises and alluring hopes doubtless produce delay and aggravation of symptoms which kill yearly a small army of credulous unfortunates. Of the evil of substitution little need be said for no pharmacist holding himself reputable will permit it. With the second-class druggist we know it as a common, damaging and dangerous practice. Here then we find that, largely in self-defense and through unreasonable competition, the druggist is forced into a position of actual antagonism to the doctor. Both desire certain things which if attained would put us on a common sense footing and redound to the benefit of both alike. The physician desires accurate, rapid, low-priced dispensing. He believes that counter prescribing and patent medicine sales are directly injurious to his patients and to his own business and professional interests, yet he makes little effort to avail himself of modern preparations or aid the druggist who attempts to abolish the two latter evils. The druggist wants for himself the minimum expense for maintenance, viz.: rental, labor and the smallest possible dead stock. There are few medical men who use in regular practice over a score or two of drugs for ordinary everyday prescribing. Yet look at the shelves of our drug stores and you see them piled with hundreds of remedies which are often obsolete, useless and practically worthless, but must be kept to supply occasional demands. There is a large body of manufacturers who are placing their products upon the market daily and advertising them by bringing their articles directly to the physician. A memorandum book, paper cutter or other more or less expensive souvenir reminds the physician that he should prescribe the pills or elixirs of their firms and by no means those of any other. As before stated a man may prescribe hypophosphites or pepsins for every month or day in the year; yet it is fair to presume that any one of those made by our own reliable pharmacists would do all that they might do. Daily we prescribe our calomel and soda in powder to be triturated and divided. The druggist pounds and stirs and measures and weighs. Our patient must submit to a considerable delay and pay an additional sum for the simple prescription. Yet the time and labor of the druggist and the time and patience of our patient might have been saved had the tablet-triturate been prescribed. In the tablet-triturate I firmly believe that we find a partial means of solution of our vexatious and troublesome problem. Here is a means for the physician to secure a cheap, portable, uniformly strong, attractive and accurate form of the drug he desires to use. So also the pharmacist has a form of the drug which would cost him less than two cents a prescription, would require the minimum of space for its display, and would do away with three-fourths of his clerical force. The true druggists have been forced into their present false position, and I believe they would be glad to conform to any reasonable requests from physicians, but as prescriptions are at present written, there is too great an outlay requisite to admit of a sufficient profit from the dispensing trade alone at a reasonable price. There are doubtless too many druggists at the present time and too great competition for the needs of the community. Many of them must inevitably go out of business. We all appreciate the strict business honor and sterling integrity of our best pharmacists. We all have warm friends amongst them. We all desire that a happy solution of our difficulties may arise, but this is the business end of our profession, the point where the interest of the doctor and his patient are both involved, and in business each man must consult his best interest in all honesty. The present system, inasmuch as it forces the druggist into a position of

actual antagonism to the doctor, is a false and artificial one. He is our natural friend and ally and we would most heartily welcome a restoration of the old relations, but while we on the one hand, by prescribing our remedies in the present manner, compel large purchases of dead stock, force him to employ a large amount of skilled labor and to rent expensive and spacious stores, so we must expect to see our own interests damaged by the counter prescribing, patent medicine sales and enormous charges for our own prescribed remedies. The day of change is at hand. The younger men particularly are coming to a full realization of the fact that nothing but custom and habit could maintain the present paradoxical relation between physician and pharmacist. It is a significant fact that in the great city of Brooklyn, two-thirds of the physicians are said to be dispensing their own remedies. The time has certainly come when we should throw aside our prejudices and ask ourselves whether we have any moral right or are under any obligation to keep up a system which is expensive for our patients and disastrous to our own business interests, when the means of change are at hand. We shall always need and welcome the true pharmacist, but we should work upon fairer and more reasonable lines. There are men who have endeavored to cut off counter prescribing, but they say that they received little or no encouragement at the hands of the profession. Unless some change is effected the physician will become gradually his own dispenser. For at a cost of a few cents and in as little time as would be occupied in writing a prescription he can give his patient a tangible substance for his money, a palatable and trustworthy remedy, and save him money, time and possible danger, while resting himself secure in the belief, warranted by the guarantee of a great and scientific manufacturer, that he has given his patient a pure and active remedy in exact dose. Almost all the common drugs are now put into the form of tablet-triturates and the physician may even have his own peculiar formulæ so prepared. He has then nearly all the requisites of the ideal preparation, viz.: cheapness, ready solubility, elegant appearance, exact dosage, purity, freshness, uniformity, and last but not least, portability. The cost is nominal. He can prescribe at house or office for all ordinary ailments without recourse to outside sources. I repeat that the druggist and physician must achieve a proper basis for mutual support now or never. No one can deny the right of any man to dispense his own drugs if he chooses. No one will deny, I trust, the advantage which would thereby accrue to the profession and their clients by so doing, unless some radical change is made. Let us try to look at the question frankly and without bias, as we look at others in this great era of progressive thought, and then in some happy way will be found a means rational and sensible of placing druggist and physician in proper relationship while giving to patients the protection and full benefit which they merit at their physician's hands. No doctor wants to do all his dispensing; there will in any event remain sufficient always for the pharmacist in certain lines, but if there were no other way of bringing about the relief of our patients in this matter we ought certainly to dispense for ourselves. I am positive, gentlemen, that these are the views of many here present to-night. Why should such ideas not find free expression? We are under the strongest obligation to advance and protect the interests of our patients, and in doing so, we are true to our profession and ourselves. To allow other motives to influence us, to allow other considerations to tie our tongues, is to prove ourselves recreant knights and unworthy to bear aloft the great and victorious standard which has in the past led the fearless warriors of our profession to their countless victories.

CONTROL OF QUARANTINE BY THE NATIONAL GOVERNMENT.

Read before the Berks County Medical Society, Reading, Pa., Nov. 8, 1892.

BY DANIEL B. D. BEAVER, M.D.,

The appearance of the cholera in New York harbor lately and the measures which were taken to prevent its entry have given rise to discussions of the question as to whether quarantine should be under the control of the National Government.

The question has been argued in the periodicals from legal and sanitary points of view.

In the latter phase it interests us alike as citizens and as physicians. Being physicians we should be sanitarians, and being sanitarians we should not only be interested in a question of such vast importance to the whole country, but feel it our privilege and duty to speak upon it.

With this view I beg to present it to the consideration of this Society, but in doing so will invite attention to such points only as have not been brought out in the discussions which I have seen in the journals.

It has been admitted generally that the health officers of the port of New York succeeded admirably in keeping the cholera out of the country, with the means at their command, but it is also well known that the State of New York and the National Government were not prepared to do the work to the best advantage of all persons concerned. The people who unfortunately came into port with the disease on board were detained unnecessarily and exposed to cruel mental and bodily suffering, while others who also came from infected ports but did not develop the disease on the way were permitted to land immediately after the most superficial and useless examination.

Having been in quarantine two days on a vessel which arrived in New York on the 22d of September, after having been at sea twenty days in consequence of a break in the machinery, with a perfectly clean health bill, excepting one case of typhoid fever, I can speak from experience of the unnecessary delays to which passengers under these conditions were exposed by the hurried and careless examination of the officers. Our vessel arrived at the Quarantine Station at 3:30 P.M., and was boarded by the port physician two hours later. The next morning a young man appeared and passed in review all the first cabin passengers, asking each one the whereabouts of himself and luggage ten days before sailing. I replied that I was on the English Channel on the tenth day, but arrived at Rotterdam the next, and after having been there two days went to England directly by boat, on account of the cholera news from adjacent cities, having, however, left there the day before the vessel which brought the disease to that city got in.

No attention was paid to these explanations, and my name was marked "Rotterdam" on the list. The

next morning there came on board a man with orders to fumigate all my luggage, and two other hand bags, one of which belonged to Mr. L. G. Young, of Savannah, and the other to Rev. J. H. B. Brooks, of Oil City. Mr. Young and his wife had been in London some time, but during the ten days before they sailed he went to France for a few days on a business errand, taking along the bag with such articles of wearing apparel as he might need there. He returned to England, met his wife, and they, together with the bag and other luggage, travelled to Glasgow and embarked with 440 other persons, and yet of all their goods only the bag was fumigated. Mr. Brooks had also been in France during the ten days' limit, with his grip sack, and the sack had to undergo purification, while the clothing which he wore was not suspected of containing any of the deadly microbes. My luggage consisted of a trunk and a small satchel. During the voyage of twenty days the trunk laid with half a dozen others in a recess outside of my cabin, and was opened almost daily, often when some of those near it were also open. The satchel was kept in the cabin and things put in and taken out of it several times daily, frequently in the presence of my room mates.

Now, a person who comes from a cholera infected district either does or does not bring with him the germs of the disease. If they are with him he should certainly be disinfected thoroughly in quarantine, and if not, he should as surely escape detention and annoyance. My baggage was as free from infection as if it had come from Greenland, and if it had not been so, there was every opportunity for the microbes to get into any of the parcels around it, with which it was opened and shaken up during the twenty days. What advantage was there then in fumigating mine while all that around it was allowed to pass unnoticed!

The fault in the official inspection was in the lack of thoroughness in the first examination. This was made with too much carelessness and dispatch to avoid error.

Some passengers who had been on the continent during the ten days' limit denied it, and the examiner made no effort to detect the untruthfulness of their statements. If they thought denial requisite is it not probable that they came from infected places, and that their luggage should have received more attention than that which belonged to those who frankly admitted having been on the Continent? Such deception could have been discovered by taking more time, and requiring of each one his hotel bills or other written evidence of location during the ten days.

Then, the fumigation itself was as ineffectual as the preceding proceedures. The trunk and bags were simply laid open in the second cabin lavatory, and exposed to sulphur fumes for one hour, without removal of any of their contents. That such fumigation had a destructive effect upon the cholera microbe, if it was there, will hardly be admitted by any one who knows anything about the subject. Moreover, it has not yet been determined that sulphur fumes will kill the microbe under any circumstances. Surgeon General Wyman says, "sulphur disinfection is inadequate, and it is necessary to rely on the use of pure steam, unmixed with air, at 100 C. (212 Fahr.) for clothing and baggage, to destroy the vitality of the comma bacillus of cholera."* At least, it is safe to say that it has not yet been determined that the microbes of this disease can be killed with less exposure to sulphurous acid fumes than will also disintegrate the animal and vegetable fibre of which wearing apparel is made. Then, in the present state of our knowledge, fumigation without destruction must be regarded as futile, and the discomfort and detention incident to it is an inexcusable injustice to travellers; and fumigation with unnecessary destruction of personal property for the public weal, without ample reimbursement of the individual, should under no exigency be tolerated. Errors in both directions can be avoided by searching preliminary examination of passengers.

It may be said in extension of the severities and inefficiencies of the methods employed in New York harbor that the officials were overworked, and had not time to go into examination of details sufficiently to avoid error, and conseqent injustice to persons, and that the crowded state of the vessels augmented very much the trials in quarantine. But, as vessels are always crowded most when the danger of importing an infectious disease is greatest, and the suffering incident to detentions is always greatest when vessels are crowded, such admission does in no way palliate the faults of a system of quarantine which does not or cannot provide properly for emergencies.

That the system in New York is sadly wanting in efficiency, entailing cruel suffering on some and letting others escape without proper examination is shown on one side by the heartrending tales told by the passengers on the Moravia and the Normannia, and on the other by those on the Ethiopia and other uninfected vessels.

On the other hand it is also true that the sufferings of the uninfected passengers on the infected ships were due primarily to the fact that they were permitted unknowingly to embark with those who brought the disease on board. There the danger to health and life began, and there the first quarantine investigations should have been made. That could probably not have been done by the State of New York because it has no representatives in foreign countries, but the United States government with a consul in every European port, might have extended its protective arm across the water. Possibly there are legal and constitutional objections to such an extension of the functions of the Federal Government, but in a common sense view of the matter they do not appear.

The Federal Government protects citizens of all the States alike in person and property against violence while sojourning in foreign lands. It will exert its whole power to liberate a citizen who has been falsely imprisoned. Why, then, should it not do the same to protect him against danger to health and life from contagious diseases which come to him him through the neglect of others! Why should it not prevent him going on board a homeward vessel in a foreign port in company with infected passengers and merchandise, blindly and without any means of ascertaining the peril he is meeting!

The mortality on the steamship Moravia on its voyage of twelve days equalled that of the great military battles of the age, and the mental and physical suffering associated with the imprisonment of the survivors at sea is equalled in modern history only by the horrors of Andersonville and the Black Hole

* The North American Review, October, 1892.

in Calcutta, and yet nothing was done to prevent American citizens from walking headlong into the death trap.

On the morning of the day the Ethiopia sailed from Glasgow, I called upon our consul there to learn what provisions had been made against the embarkation of steerage passengers and others from districts affected by the cholera. I was received very courteously and told that he had just then received orders from Washington to request the steamship company to fumigate all the steerage passengers under his supervision. Thinking that possibly further protective orders might have been received from home I repaired to the dock four hours ahead of the sailing time of the vessel, expecting to undergo some sort of examination, perhaps fumigation, but found nothing of the kind. It was said that the steerage passengers were fumigated, but I did not learn where. They, with the second cabin passengers passed in view of a physician as they stepped from the gang plank who did nothing more than look at the motley crowd as it passed him, and ask a few children when they had been sick. He could no more tell whether the seeds of cholera, scarlet fever or diphtheria were in their bags and bundles than whether they had had mutton for dinner.

After such meagre sanitary precautions 442 people were sandwiched into the vessel, only two weeks after the cholera had broken out in the city among a batch of Hebrews who had arrived a few days before the departure of the steamer on which their passage had been engaged. The Ethiopia sailed on the day the President's proclamation, imposing a twenty days' detention in quarantine on vessels with steerage passengers on board, went into effect, with 191 persons in the steerage, and the prospect of being detained twenty days was a constant source of anxiety and fear during the voyage. Would it not have been better if the President had proclaimed that the twenty days' purification must be performed on the other side; that a rigid examination of all persons embarking for this country, requiring written evidence of their whereabouts for twenty days, must be made by the consul; and all persons coming from sections afflicted with the cholera must be disinfected and detained twenty days before sailing, upon pain of indefinite detention in quarantine here.

A thorough preliminary examination and detention, if necessary, on the other side would simply change the place of action; and the change would be advantageous. It would enable all persons to procure evidence of where they were at any time previous to departure, and in case delay were necessary would permit them to remain on land, free from the enervating restraints and nauseating discomfort which are inseparable from confinement on a crowded vessel lying at anchor.

At home the pauper and criminal are shielded against contagious and infectious diseases, while under our present system of quarantine the best citizen abroad with his face turned homeward, perhaps in sight of the Stars and Stripes, is compelled to step upon the broad ocean without the least assurance that pestilence and death are not awaiting him in the foreign filth with which he will be surrounded on the way, and from which he cannot escape, to find the door closed against him for twenty days if he survive to reach home.

In opposition to national control of quarantine, and in advocacy of State rights, it may be said that the traveller abroad can ascertain from the owners of the vessel he proposes to take whether persons from parts where cholera prevails will be on board, and if they deceive him and he suffer loss through the deception he may have recourse at law at home. So he may if he be fortunate enough to get home alive.

But this is the logic of the forum and the court-room, and not of the hospital and sick room.

As physicians and sanitarians our best work is done in the prevention of illness and suffering; and at present in view of the strong probability of the recurrence of cholera in Europe next summer, it seems the immediate duty of the profession to call the attention of our government to the importance of making provision to meet the dread disease before it reaches our shores, to guard our own citizens in transit on the sea against it, and thus prevent a repetition of this year's mournful scenes in New York harbor.

These ends can be reached best by putting quarantine entirely in the control of the National Government, and extending its regulations to, and enforcing them rigidly, in foreign ports.

HIGHER MEDICAL EDUCATION.

BY W. M. HARSHA, A.B., M.D.,
OF CHICAGO, ILL.

Higher medical education was discussed at the meeting of the South Side Medical Club, October 28, last.

President Harper, of the Chicago University, had expected to be present but was prevented, much to the disappointment of the members of the club.

The principal speaker of the evening was Prof. Wm. E. Quine, a recognized leader in the movement toward higher medical education, who in his usual interesting and impressive manner, traced the advances made in medical teaching during the past two decades. He showed conclusively that the progress has come through the efforts of medical teachers of the more progressive schools, rather than through the demands of the profession at large, or of the public or even of State boards of health. The higher standard of preliminary education now obtaining among medical students was noted among the encouraging signs; and the establishment of an increased number of chairs, and of microscopical, bacteriological and other laboratories here in Chicago, in the more progressive medical colleges, was cited to prove that higher medical education has already been inaugurated; and that we have now in our midst facilities for the scientific study of medicine equal to any found on this continent.

In the discussion that was evoked comparisons were made between the present methods of teaching in this country and those of European countries, which were not discreditable to us when only the better colleges are considered. The average attainment of practitioners however was deplored; and the short and easy courses of study through which a majority have graduated, were pronounced inadequate.

The opinion was general that a higher preliminary education and compulsory four year courses of medical study in which laboratory, manual training, and clinical instruction shall be prominent features,

are necessary. Many of these conditions now obtain in the better institutions, while in others there are efforts to raise the standard. This augurs well for the medical graduates of the future and much credit is due to the enthusiastic supporters of the movement. Little was said about post graduate study. A majority of all practitioners of the present have obtained their degrees before the advances noted were made. These men are the conservators of the public health, and to some extent, of the wealth of people.

As such it is their duty to disseminate sanitary and hygienic knowledge and so prevent disease, although in doing so they strike at the source of their income. So often did epidemics occur in times past to decimate populations that some philosophers regarded them as a beneficent provision of nature intended to check over-population. But scientific physicians have sought out the causes of disease in many instances and rational means of prevention were next discovered. Within the past few years the specific causes of suppuration, which gives rise to most forms of blood poisoning, have been discovered. This led to modern aseptic and antiseptic plans of treatment, and as a result the mortality from wounds, injuries and surgical operations has been reduced to a minimum. Likewise the various causes of tuberculosis, typhoid fever, tetanus, erysipelas, diphtheria, and other infectious diseases have been revealed by the microscope, and we have new grounds for belief that means of prevention and cure will be found.

It is estimated that nearly one-third of all children born die before they reach the age of five years—mostly from microbic diseases.

Tuberculosis causes about one-seventh of all deaths. Typhoid fever has caused two thousand deaths annually during the past two years in Chicago alone. From this it will be seen that much remains to be done. The prevailing spirit of scientific investigation must be fostered. It is the duty of the profession to conserve life and assist in the evolution of the race and the attainment of its destiny.

The public which reaps the benefits of scientific medical discoveries has done little in return. The National Government has not consented to establish a department of public health. Appropriations have been insignificant; and legislation aimed at higher standards has been uniformly obstructed in the various States.

In other departments of learning National, State and individual aid of a substantial character has been freely given. In our own State, except in one instance, nothing has been bestowed upon medical teaching so far as I know. Millions have gone to endow hospitals in which the sick may be cared for—little has been given to foster the study which shall aid men to prevent and cure disease.

Theological schools are the recipients of immense sums from time to time. A vast amount of wealth is lavished on art. Half a million is bestowed upon the department of astronomy in the great university now starting. Practically nothing is given to aid enthusiastic men to seek out the causes and cures of disease, to lessen the number of the lame, the halt, and the blind that may be seen on our streets, in the hospitals and asylums. Medical men of scientific bias and training do not acquire large fortunes. Several physicians of international reputation have died in the past three years in Chicago—men who were well known throughout this broad land as medical teachers. So far as I know not one of them left an estate valued at more than fifty thousand dollars. Medical discoveries are not preserved to enrich the authors by regular physicians; but are donated to the profession and so to the public. Commercial medical men who often acquire fortunes are not interested in the scientific aspects of the work and hence little can be expected in the way of endowment for medical instruction from the medical profession. To a considerable extent medical teaching is gratuitous.

Post graduate schools there are that are of incalculable value to the profession. Hundreds of physicians annually avail themselves of the advantages they afford and so the standard of skill and knowledge is constantly advanced. A majority of physicians however, cannot make the sacrifice of business necessary to enable them to devote several consecutive weeks to study; and so they fall behind in the rapid march. Let the University extension plan be applied in post graduate study. If the mountain will not go to Mohammed, let Mohammed go to the mountain. In the city teachers may be provided where groups of ten or twelve can be found who desire to study any special course in their own locality. This in my judgment would give a great impetus to medical study throughout the whole profession. Physicians are willing to pay for such instruction if they can secure it without too great sacrifice of time. In microscopy and bacteriology, which are of the greatest value there is no bar to a proper study in such a manner. In addition to valuable knowledge gained making better sanitarians, diagnosticians, and practitioners, there will spring up more harmony in the profession, and best of all, will come a thirst for more knowledge, which is the most important feature of any education.

58 State St., Nov. 10, 1892.

THE TREATMENT OF SPECIFIC AND NON-SPECIFIC URETHRITIS BY TOPICAL OLEAGINOUS MEDICATION.

BY EUSTATHIUS CHANCELLOR, M.D.

So much has been written and published on gonorrhœa that the medical world has a certain distaste for any new literature on the subject; suffice it to say that the numerous nostrums and panaceas for it are nearly as common as the disease is prevalent, and hence I feel a sincere misgiving in even attempting an allusion to this subject, not to say anything of the many benefits to be derived by the novel treatment hereinafter described.

More than a year ago, while on a vacation, I was in charge of several hundred men, some of whom were afflicted with the clap, and having but limited means at hand for their treatment, I was in a quandary as to the best method to pursue. The majority of the cases which came under observation were from five to twelve days after incubation, being just about the second period or stage of the disease, which was marked by an abundant, thick, greenish-yellow discharge, considerable pain on micturition, much heat of the caput and body of the organ, with redness of the urethra and meatus.

My attention had long since been directed to the remarkable properties of the chemical compound

known as campho-phenique. Its high antiseptic and anæsthetic properties, its freedom from irritant effects, and its complete solubility in bland fats and oils, had early suggested its usefulness in the treatment of many dermatoses, and its tested and proven value in these, in turn, suggested its employment in the condition of things with which I was confronted.

Alkaline baths and a suitable regimen were enjoined, and each individual was directed to use the following injection from four to six times daily, by means of a small blunt-pointed syringe, the contents (about two drachms) being retained from one to two minutes:

℞. Campho-phenique, 1 to 2 drachms.
Benzoated zinc oxide ointment, 1 ounce.
Sweet oil sufficient to make 4 ounces. M.

This in a short time caused an amelioration of the symptoms and a rapid convalescence.

The constant and almost daily use of campho-phenique has suggested several beneficial oily combinations. When properly prepared and used judiciously, the effects are as startling as the cure is speedy and permanent. A satisfactory experience has demonstrated that this agent, when mixed with oils or fats, is one of great value in venereal diseases, having properties which, for the sake of brevity, may be expressed thus:

1. It is an antiseptic, a local anæsthetic and, in proper dilution, entirely innocuous to the tenderest urethra.

2. The vehicle should be albolene, benzoinol, any bland oil or fat, or an ointment.

3. As an injection it appears to palliate the sensitiveness of the mucous membrane, and to act as a varnish over the entire tract, thus allaying the scalding and irritation subsequent upon micturition. Pain is greatly mitigated after the first few injections, each of which should be retained for several minutes.

4. Campho-phenique readily mixes with aristol or iodoform, should such a combination be desired. One scruple of either substance may be added to each drachm of campho-phenique. But small amounts of such mixture should be ordered, as they must be freshly made every day or two. It is well to remember that the antiseptic index of campho-phenique is many times that of either iodoform or aristol.

5. Campho-phenique injections, as described above, have proven highly efficacious and satisfactory in cases of erosive granulations, ulcers and indurations of the urethra. The troublesome discharges due to inflammation of the lacunæ of the urethra succumb quickly to such injections, and danger of subsequent stricture is very much lessened.

6. The duration of the disease is remarkably lessened by the described treatment, the average length being from twelve to fifteen days, and could, I think, be further shortened by increasing the daily number of injections.

The following are given as examples of the mixtures spoken of above (4):

℞. Campho-phenique, ½ to 1 drachm.
Iodoform, 1 to 1½ scruples.
Albolene, 2 ounces. Mix.

℞. Campho-phenique, ½ to 1 drachm.
Aristol, 1 to 1½ scruples.
Benzoinol, 2 ounces. Mix.

℞ Campho-phenique, ½ to 1 drachm.
Bismuth subnitrate, 2 drachms.
Olive oil, 2 ounces. Mix.

PURULENT BRAIN DEPOSITS, AND PHLEBITIS AND THROMBOSIS OF THE CEREBRAL VEINS AND SINUSES FOLLOWING EAR DISEASE.

BY FRANK ALLPORT, M.D.,
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(*Continued from page 691.*)

Brain abscesses are never a primary disease. They are always the result of traumatism, pus contact, or pus migration, and are usually caused from otorrhœa. They affect the white rather than the gray matter, and being usually found in the temporal lobe —in which are neither motor or sensory nerve-tracts —distinct localization symptoms are apt to be conspicuous from their abscence. This is equally true of abscesses in the frontal lobe, which may be entirely destroyed, without producing special signs.

Mr. Field says that "The more acute forms of abscess, give rise to the signs usually attributed to meningitis or encephalitis, while the more chronic ones give rise to no symptoms whatever, until the abscess extends sufficiently near the surface of the brain to light up an inflammation of the membranes, when it becomes suddenly revealed. The probability is that chronic abscesses may exist for years without trouble. It is probable also that recoveries from such abscesses have taken place, the pus undergoing fatty degeneration, becomes quiescent, the fat is re-absorbed, and the fibroid sac shrinks and contracts upon a cretaceous residue."

Abscesses that develop slowly are often encapsulated. Acute abscesses are not usually encapsulated. It is possible that a larger proportion of abscesses are encapsulated than would appear, owing to the possibility of a primary retention of pus within its walls, and a subsequent disintegration of the capsule, with a diffusion of the contents.

The symptoms that may be expected in cerebro-aural pus deposits are often vague and indefinite. This may be attributed to the frequent lack of brain pressure, owing to the many places where pus may lodge, and accumulate, even in large quantities, without materially compressing sensitive brain substance. It may also be due to the fact that brain abscesses following ear diseases, are usually located in lobes containing no sensory or motor nerve tracts, and in consequence enormous destruction of their substance may take place without active symptoms supervening. An explanation may also be found in the fact that a constant draining of the abscess occasionally occurs through the middle ear, or mastoid bone, by spontaneous or operative openings. An abscess may approach in this insidious manner, without sounding a note of warning, until suddenly it will burst into sensitive portions of the brain, and death may occur before one is fully aware of danger, although a majority of these cases have symptoms to which brief allusion may be made.

The patient usually has suffered from a chonic otorrhœa. The discharge may be profuse, unaccountable, and uncontrollable, or it may, for some reason, either spontaneously or from injudicious treatment, suddenly materially lessen or nearly cease, and it is under such circumstances that symptoms occur, pointing to brain complications. We note primarily continuous severe pain in the head, focussing in one

particular spot corresponding to the principal seat of of lesion, and we would consequently look for pain in the side of the head, in case of a complication of the temporal or middle lobe, and in the occiput when the cerebellum is involved. The pain becomes worse during febrile exacerbations, and pain in the affected ear will also be frequenly noticed. The mastoid is often tender, painful and swelled, while nausea and vomiting are often present, and probable constipation of the bowels. Rigors, all the way from a chilly sensation to a pronounced chill may be present, and when seen, should instigate active measures. No positive reliance can be placed on the sudden accession of febrile symptoms, as the same conditions might be found in a case of pure otorrhœa, with pus retention.

It is a generally accepted opinion that cerebral abscesses produce a sub-normal temperature. These records hardly endorse this view. A high temperature is recorded eight times, a medium temperature forty-two times, and a sub-normal temperature only twice. In one hundred and fifteen cases the temperature is not mentioned, and in these latter cases it is fair to presume, that the temperature was not a conspicuous feature, or it would have been noted, especially had it been sub-normal. The post-mortem reports show 98 cases where brain abscesses were found, and only two cases, as before mentioned, are recorded where a sub-normal temperature existed. In both these instances, however, it is but fair to observe, a brain abscess was disclosed after death.

The conclusion therefore, is forced upon us, that while a sub-normal temperature *may* by indicative of a brain abscess, when found in such cases, we need not feel that a sub-normal temperature *must* exist, in all cases of brain abscess.

It will be observed also, that a high temperature is recorded only eight times. In these cases, the autopsies did not show brain abscess to be the predominating feature. Almost invariably, thrombi in different locations, and extensive necroses were the leading post-mortem appearances. From all we can learn, therefore, the temperature and pulse are *moderately* elevated in cases of auro-cerebral abscesses. Occasionally the pulse has been found very sluggish. Toynbee has recorded one case where the pulse beat was from 16 to 20, and Wreden has observed one case where it was only 10 to the minute.

Delirium, partial or complete unconsciousness, vertigo, somnolence, and convulsions are noticed in most cases, and coma is generally one of the last symptoms observed. The different forms of paresis and paralysis are often seen, and are chiefly noticed in the arms, legs, face, lids, and by strabismus, dilitation of the pupils, diplopia, paralysis of the auditory nerve, and incontinence of urine.

Inasmuch as the seventh nerve passes through the tympanum, in the Fallopian canal, parts supplied by it are apt to be paralyzed, when tympanic necrosis is an element in the case.

Attention should be directed to inflammation and paralysis of the optic nerve, as it is a symptom that is not often sought, and one to which some authors attach much importance. It would probably be found oftener if the ophthalmoscope were more frequently brought into requisition, and this instrument should certainly be used when amblyopia or amaurosis are present, as they are occasionally.

Truckenbrod regards aphasia, as a symptom of invasion of the temporal lobe, and Wernicke claims that aphasia indicates a disturbance in the posterior 3d of the 1st left temporal convolution.

It is undoubtedly true that in the cases I have grouped together, aphasia is present *only* in those cases where there was a purulent involvement of the left temporal lobe. The records do not show, however, whether it occurred in the posterior 3d of the 1st left temporal convolution, but it must not be forgotten that distinct abscesses were found by *post-mortems* to be present in 40 temporal lobes, of which a good proportion were on the left side, and in but six of such instances, was aphasia present. This remark does not include those cases of pus *diffusion*, over the temporal lobe.

The question of a differential diagnosis with brain tumor may arise, in the history of such cases. One very important point in enabling us to arrive at a conclusion in such an instance, is the fact that in brain tumor all the symptoms are quite certain to be constant, with an ever increasing tendency to become worse; while in abscess, the symptoms usually become worse during febrile excitement, and have a vacillating course.

Von Bergman says that the nearer the abscess approaches the posterior division of the frontal convolution, the more apt are we to observe strabismus, disturbances of speech, and irritation or paralysis of the facial nerve.

From my review of these 169 cases, I have ascertained the symptoms recorded as occurring in cases where the autopsies have shown the cause of death to have been, the *intra-cranial presence of pus, outside of the veins and sinuses.* They are as follows:

Deafness	9	Aphasia	5
Head pain	38	Stupor	12
Ear pain	16	Somnolence	7
Chills	16	Tinnitus aurium	2
Temp. sub-normal	2	Insomnia	1
" medium	7	Meningitis	4
" high	2	Optic neuritis	3
Pulse sub-normal	2	Incontinence, urine	2
" medium	7	Nausea and vomiting	29
" high	2	Mastoid tender and swelled	11
Facial œdema	1	Paralysis of limbs	13
" herpes	1	Pupils contracted	4
Nystagmus	1	" dilated	4
Neuralgia	1	Strabismus	4
Constipation	19	Diplopia	1
Delirium	19	Amaurosis	1
Maniacal	1	Facial paralysis	13
Unconsciousness	9	Amblyopia	1
Convulsions	21	Ptosis	1
Epilepsy	3	Paralysis of auditory nerve	1
Vertigo	13	Episthotonus	1
Coma	29		

I have also prepared a table showing symptoms that occur in *pure* cases of the intra-cranial presence of pus, *uncomplicated* by any lesion of the veins or sinuses. These symptoms do not occur in any other class of cases under consideration.

Deafness.	Incontinence of urine.
Temp. sub-normal.	Paralysis of limbs.
Pulse sub-normal.	Facial œdema.
Maniacal.	Nystagmus.
Epilepsy.	Neuralgia.
Aphasia.	Constipation.
Insomnia.	Amaurosis.
Pupils contracted.	Ptosis.
Pupils dilated.	Tinnitus aurium.
Paralysis of auditory nerve.	

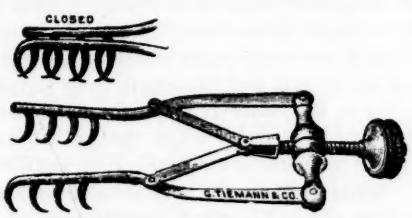
And I have also noticed those symptoms that have occurred in both forms of the disease, but have predominated in those cases where there was an intra-

cranial presence of pus, outside of the veins and sinuses. These are as follows:

Coma.	Somnolence.
Convulsions.	Stupor.
Unconsciousness.	Nausea and vomiting.

We now turn to the subject of the treatment of these cases. There is but one resort for an intelligent surgeon, and that is to operate. The question simply is, when to do it and how to do it?

In a case of either acute or chronic otorrhœa with or without mastoid symptoms, where brain phenomena supervene, we should first give the patient the benefit of a doubt by freely opening the drum-head, both in its lower segment to secure good drainage, and in its upper posterior portion, where pus is prone to lodge. The patient should be kept quietly in bed, and the fountain douche, with very hot water should be allowed to run into the ear every hour during the day, and several times at night. Inflation should be used once or twice a day. A few days may be allowed to elapse—unless extra-dangerous symptoms occur—and if the patient is not then practically better, the mastoid process should be freely opened. As large an opening as possible should be secured. If the mastoid speculum devised by myself be used, the operation will be practically bloodless, and made with much greater facility and certainty.



I feel sure the mastoid should *always* be opened in such cases, before the skull is opened, as there is a very reasonable chance, that the mastoid antrum or cells, may be the focus of disease, and that this operation will suffice. The records that I have compiled show conclusively that in some of the cases, a much better and speedier result would have been obtained had this idea been adopted.

We may find within the process, for instance, caries or necrosis of the inner mastoid plate, or even a fistula, that may solve the whole problem, and render further operative interference unnecessary.

In case a softening of the internal mastoid plate is found, the diseased bone should be gently cut away, and if a perforation is easily made, it should be accomplished, the aperture enlarged, and the operation concluded in the same general way, as will be described later on.

If the perforation is not quite easily made, the procedures should be stopped at this juncture, and we should await developments.

If a fistula of the inner mastoid plate is found, it should be enlarged, and the operation concluded, as will be subsequently described.

In case the mastoid operation fails to relieve the patient, a perforation of the skull must be made. It may be deemed advisable to again direct our interference to the mastoid plate, in case a fistula has not been found, and if we found necrosis of the inner wall, but did not make a perforation at the first operation.

"Experience alone can tell whether after all it is best to seek for temporal abscesses, directly from the roof of the mastoid process. At all events, it offers the advantage of leaving the entrance of the wound *lower than the abscess*, so that the pus flows off easier, and the skull is not injured, sometimes very advantageous to the patient." (From Von Bergman.)

It is of course, evident that perforation of the inner mastoid plate, is only advisable in those cases where the indications point with reasonable certainty to an involvement of one of the middle lobes of the brain, especially the temporal.

An accurate diagnosis as to the seat of the abscess is of the utmost importance, and the leading points, so far as it is at present known, for such a diagnosis, may, I think, be gleaned from the preceding pages of this article. The two principal objective foci for operation, will be the temporal lobe and cerebellum.

In case we decide to perforate the skull, with the hope of locating an abscess in the temporal lobe, where is the best seat for operation?

This question may sometimes be answered after the proper flaps have been made, by the finding of an area of softened, necrosed bone, or possibly a fistula. In the event of such a discovery, the operation may be made at this point, the necrosed bone should be removed, and an opening effected, or the fistula should be enlarged.

But in case we are not guided, as before mentioned, the best place for opening is just above, and perhaps a little in front of, the bony meatus, directly over the superior line of the zygomatic arch, the temporal lobe at this point being about 1⅜ inches wide.

This exposes the dura-mater near the tympanic roof, without wounding the middle meningeal artery, and is about the most dependent portion of the middle cerebral fossa, the squamous bone being exceedingly thin at this point, and easily perforated. The opening may be made with either the drill, chisel, dental engine, or trephine, and should be sufficiently enlarged, and the edges smoothed. Personally, I do not like the chisel, either for this operation or for opening the mastoid process. I do not feel that it is advantageous to an already inflamed process, or brain, to pound it. Salzer suggests that the concussion might cause the rupture of an abscess into the ventricle, or the sub-arachnoid space. I have operated upon 83 cases of mastoid abscess, with the drill, and have had uniformly smooth operations, never having struck the lateral sinus but once, and then experiencing no ill effects from its exposure.

Before the operation, the scalp, for a large area, around the field of operation should be shaved, and thoroughly scrubbed and cleansed antiseptically.

Chloroform should be used instead of ether, as it produces greater quietude, and less cerebral congestion and tension. The auricle should be dissected down, so as to thoroughly expose the position of the bony meatus. It may be held down by an assistant and suture, and will then be out of the way, and will not interfere with the steps of the operation.

A large circular flap should be made, with a broad base, sufficiently extensive to thoroughly expose the field of operation. This may be held back by an assistant and a suture. The parts may then be held apart by my mastoid speculum, which will also control the bleeding, if the blades are widely separated. If hæmorrhage however, should annoy the operator, Lanphear recommends hot (115° Fahr.) water to be applied to the parts, and this should be ready for use

during the operation, and must be thoroughly antiseptic.

(To be continued.)

SELECTIONS.

EDUCATION AND RESEARCH.—Professor Virchow's recent rectorial address to the University of Berlin will appeal to a far wider audience than that great University, and has a weight deriving not only from the importance of the subject discussed, but also from the position and great endowments of its author, whose attainments as a pathologist are equalled by his wide philosophical culture and his rich experience of life.

After touching upon the value of such annual occasions, when we examine ourselves, sum up our gains, prove our methods, and glance into the future, the Rector went on to say that the vast changes in the sphere of learning during the last half century had amounted to a revolution. Our older methods have been found wanting and are largely broken down, and the position both of school and of university teaching must be conceived afresh. This no man can do from the universal point of view; no man is a "Träger alles Wissens"; we must, therefore, all contribute, each from our own standpoint.

The conflicts between students and authorities in Germany, deplorable as at one time they were, have happily ended in securing freedom of teaching and freedom of learning, teacher and scholar having each his own independence and responsibility. The student who comes up from school to university is tempted by this absence of restraint to self-indulgence or pleasure, but if by these seductions he wastes even the first term, he may find it impossible to recover the lost ground; and if at the end of his university career he has not reached an average place in his education, he will probably be a bungler for the rest of his life, as the opportunity for "freedom of learning" will probably never return.

Out of the practice of this "freedom of learning" comes delight in learning, and this will decide for him between the various kinds of learning; a university uses no compulsion, and unhappily of late years the influence of teachers can be but little upon individuals, but is exercised upon the students in the mass. It is said that there is thus some falling off in the forming of students. In medicine especially is this true, wherein a student comes strange to an oppressive fulness of new ideas and new subjects of study, and is soon disheartened if the groundwork has not been well laid at the beginning.

What is to be done, asks Virchow, under this overwhelming progress of knowledge, time remaining the same or even growing less, so that both teachers and scholars are overweighted? So large a question could not be fully dealt with in an address, but certain aspects of it were considered. In the first place, the Rector appealed to the higher schools to kindle the "love of learning" rather than stuff their scholars with much information of a positive and detailed kind. Moreover, he called upon them to send up scholars *competent for independent study*, young men able to pursue their own course of work, not leaning upon others, not needing special stimulants at the hands of their teachers.

In detail, of course, each faculty must indicate its own requirements, but if love of study and self-help be previously brought out, the development of the student will be continuous. "Every normal child loves learning," has joy in new objects and in new uses for its organs, special senses, and reason, and whatever the variety of inherited talent this disposition should increase with its years. Two dangers, however, beset it—the danger of crushing this love, as too often it is crushed, by unfit or dull methods of teaching, and the danger lest thirst for knowledge degenerate into mere desultory curosity. Against the latter tendency the historical method is the best preservative.

In the next place Virchow appealed to the higher schools to weigh well their duties in respect of the two classical languages which hitherto have enjoyed the "lion's share" of the curriculum. Latin is inherited by our grammar schools from the time when it served the precious purpose of welding all Western thinkers together; now "national tongues have come into their natural rights," and we have succeeded to and sanctioned a state of "Babylonian confusion of tongues." The welding function of Latin is therefore ended, and, on the other hand, the works of Latin writers are seen to be far inferior to those of the Greeks, who were the fecund sources of thought and form. "Homer, Aristotle, and Plato are in our day the masters of the nations." So by culture and custom Latin must recede, and its grammar, to which its methods have largely fallen, will not much longer discourage the youthful mind. Medicine indeed alone of all the faculties has an unbroken tradition of 2,000 years from the Greek, but even to it Hippocrates and Galen are no longer of use, and Greek is seen rather to have its place in the spheres of philosophy and poetry.

For modern teaching, mathematics, philosophy, and natural science are the prime methods—"the golden triad" upon which progress rests. From them we shall derive that large wisdom which the Ionian Greeks taught us to desire. In the schools, therefore, youths must be led to study the principles of astronomy and biology in their simpler aspects, for astronomy is the pattern of mathematics and physics, and in chemistry they must learn the art of experiment. Yet weight and measure are not all. How shall he, whether theologian, jurist, physician, or schoolmaster, consider psychology who has not learned the forms of thought? If philosophy cannot be taught in schools, they must teach "respect for philosophy." Finally, the Rector pointed out the farther difficulty that universities stand now in mid fight between the claims of the higher education on one side and of technical training on the other. Experience has not yet taught us to decide between these rival claims, and teachers vacillate. No compromise is as yet in sight.

It must be admitted that mere special training can be given without that larger development of the whole man at which universities aim. For such specialist studies technical schools and seminaries suffice. A university is not a mere aggregation of technical schools; it aims at an interpenetation of all faculties, at general conceptions. Unhappily, from the lack of preliminary training in the higher schools, university teachers have their time wasted in foundation work. Now, if a university is to hold its proper place, it must be not only an institute of learning, but also an institute of research, and the former cannot exist without the latter. University teachers should therefore have more time at their disposal than other teachers, and should not, because of deficiencies of the schools, have this time occupied in elementary instruction. The university must be an association of leading thinkers and investigators in free coöperation, and their students must come to them with a love of learning and with their faculties trained to the independent pursuit of it.

At this moment, when the establishment of a new and great university is under consideration, and when public school teaching is chaotic and unfruitful, we have felt it to be our duty, even at some length, to set forth these wise words of one of the leading thinkers of our profession.—*British Medical Journal.*

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SATURDAY, DECEMBER 17, 1892.

ON FORMS OF ALBUMINURIA YIELDING A FAVORABLE PROGNOSIS.

That certain forms of albuminuria may exist without disease of the kidneys, or, at least, without a primary affection of these organs, is a well established clinical observation; but the fact that, as a rule, such cases afford a favorable prognosis is not generally accepted. Without including unavoidable albuminuria, where the presence of blood or pus in the urine fully accounts for the existence of the albumen; nor febrile albuminuria, where the albumen is clearly the result of elevation of bodily temperature, or disturbance of circulation in the kidneys, we have remaining for consideration a well-marked group of cases in which albuminuria has its origin or immediate cause in some alteration, either transitory or more or less permanent, in the composition of the blood. FOTHERGILL, in his monograph on "Vaso-renal Change *versus* Bright's Disease," summed up the evidence in support of his favorite view that the presence of an excess of uric acid in the blood is the starting point of the arterio-capillary fibrosis, of which the cardiac hypertrophy, the increased arterial tension and the progressive degeneration of the kidneys with albuminuria characteristic of Bright's disease, are the natural sequences. The increase of uric acid and similar primitive excrementitious material, he attributed to a failure of the liver to sufficiently elaborate the nitrogenous material so as to convert it into the more soluble form of urea, since some of the lower animals (for instance, birds and snakes) discharge a urine consisting almost entirely of urates or of uric acid, he considered that this excess of uric acid in the human organism is an indication, on the part of the liver, of reversion to a lower type. Thus an overworked, especially a naturally inadequate, liver, being unable to perform all the duty imposed upon it in the way of converting excrementitious nitrogenous waste into urea, would readily revert to a more primitive type of organ and furnish uric acid instead of the more highly oxidized urea. The effect of such a failure on the part of the liver would be to give rise immediately to the condition of lithæmia, and this in turn to more or less frequent acute attacks of gout, either in its typical form, or in its more obscure manifestations in lesions of the nervous system, and of various individual organs. The kidneys of patients in whom this state of the blood has existed for any length of time are so commonly found to be the site of cirrhosis, that the small, contracted kidney is frequently called the "gouty kidney." Hypertrophy of the left ventricle of the heart, and atheromatous degeneration of the aortic valves, are likewise now considered as preëminently gouty in their origin; since they are found commonly associated with the other signs of this diathesis which have been already referred to.

More light has been thrown upon this subject recently by an observer whose previous contributions to the pathology of Bright's disease and his work in the field of clinical medicine and diagnosis, entitle him to speak with authority upon these mooted questions as to the origin of albuminuria. At the annual meeting of the Philadelphia Pathological Society last month, PROFESSOR J. M. DA COSTA delivered an address, taking for his theme "The Albuminuria and Bright's Disease of Uric Acid Formation and Oxaluria." He first insisted upon the fact that there is a distinct group of cases of the kind with albuminuria, the pathology of which is not clearly understood; but which, clinically, are easily separable from the classical forms of renal disorder. They are unlike in origin, pursue a different course, call for special treatment, and have, as a rule, a favorable prognosis.

The diagnosis of this form of albuminuria from the typical forms of Bright's disease, is not difficult. In the first place, the albumen, which is variable but never present in large proportion, is accompanied by casts only exceptionally, and these are of the epithelial variety, never fatty. The most marked characteristic, apart from the albuminuria, is the high specific gravity of the urine. In many cases this was the first symptom which excited attention; the urine is persistently 1025, 1030 or above. It is acid in reaction, and contains, in one class of cases, an excessive proportion of uric acid and urates; in another, there is marked oxaluria, or both forms may coexist. The principal symptoms are digestive disorders, flatulence, constipation, depression of spirits, and in fact the usual nervous and digestive symptoms of lithæmia. The absence of dropsy is noteworthy, as well as the entire absence of eye symptoms. It is also to be observed that in the class of cases under consideration, the arteries are not rigid, the pulse is not indicative of high tension, and the heart

is not hypertrophied, although its action may be accelerated and the pulse may be intermittent. In the cases with oxaluria, there is to be noticed a greater amount of nervous depression and gloominess, but the same amount of dyspepsia as those in which there is excessive uric acid excretion. A tendency to an afternoon rise of temperature was frequently observed by DA COSTA, in these patients.

The persistent high specific gravity of the urine, the absence of eye-disorder, of cardiac hypertrophy, and of high arterial tension, afford diagnostic data, distinguishing these cases from those of contracted kidney, which is the form of Bright's disease most likely to be mistaken for this albuminuria of uric acid formation and oxaluria. At the same time the lecturer was of the opinion that this condition might in the course of time, in exceptional cases, develop this form of Bright's disease of the kidneys, and he referred to such a case occurring in his practice.

It is a curious fact that nearly all the cases of this form of albuminuria occur in the male sex; the lecturer had met with only one case occurring in a woman.

The relation which this form of albuminuria may bear to cyclical albuminuria, the albuminuria of adolescents, and similar intermittent forms of albuminuria, is a question of immediate interest, which at once suggests itself to the mind of the reader. PROF. DA COSTA considers the relation a very close one; especially since upon reviewing his notes of former cases of albuminuria of adolescents, which, by the way, occurs chiefly in boys, he was struck with the uniformly high specific gravity of the urine, the significance of which was hitherto not understood. The coincidence of the presence of an excess of urates and of oxalates in the urine was also noticed in going over the literature of the subject. The fact that boys are very active in their habits and fond of exercise must be taken into account, since GRAINGER STEWART stated that, in a company of soldiers after prolonged marching, it was found that a large proportion had albumen in their urine, an observation which has been since confirmed by others. The lecturer was inclined not to attribute the albuminuria directly to the effects of the exercise, but indirectly to the increased tissue change and the accumulation of excrementitious material in the blood resulting from the muscular exercise, thus producing a temporary lithæmia. He also was of the opinion that a great many cases of cyclical albuminuria, are really instances of this same lithæmic albuminuria and that they are likewise produced by increased excretion of tissue-waste.

The prognosis is good; the patients generally get entirely well. This is of great importance from the standpoint of the examiner for life-insurance since these cases are often rejected on the ground that they are victims of Bright's disease. He gave several instances in which the patients first learned of the existence of albuminuria through applying for life-insurance; and after being rejected they came for treatment; subsequently, they entirely recovered their health and the urine became normal.

The subject of treatment may be disposed of in a few words. In the first place, it is a great relief to the patient to be assured that he has albuminuria but not Bright's disease and that by regulating his habits of work and medical treatment he will get entirely over it. Dietetic regulation is of first importance. DA COSTA does not insist strictly upon a milk diet, but milk as a food should occupy a prominent place. As long as the patient is able to take daily exercise, meat in moderation is allowed. Green vegetables and bread are permitted, but sugar, butter and starches generally are restricted or entirely forbidden for the time. Change of residence is often beneficial; several patients returned cured after a visit to Europe. As regards the special remedies to be used, he found laxatives of great service; indeed, good results usually follow the administration of the old fashioned blue pill at night and a saline the next morning. The activity of the kidneys should be maintained by citrate or acetate of potash, or similar drugs, and mineral waters used freely so as to flush out the tubules. It is of importance that exercise should be systematically taken, though not to excess. Inhalation of oxygen had not afforded decided results in his hands, but might prove of some service. Recurrence of the symptoms calls for repetition of this course of treatment.

The paper of which we have given the principal points will appear very shortly in full in the *American Journal of the Medical Sciences*. We congratulate the Pathological Society of Philadelphia, which in fact years ago was founded by PROFESSOR DA COSTA, upon securing this valuable contribution to its annual volume of transactions.

APPENDICITIS IN FRANCE AND IN AMERICA.

From the discussion regarding appendicitis by the Paris Surgical Society (Bull. et mém. de la Soc. de Chir. de Paris, T. xviii). it is evident that unanimity of opinion upon some points as to treatment is not yet established in France, and that the French are somewhat behind the progress of American surgeons. The discussion as brought out in the society includes the etiology and pathology, the expectant opium treatment and early and late operations upon the inflamed vermiform, and is based upon the histories of cases presented and the results of operations performed. The adherents of the opium treatment (BERGER, MOTY, MARCHANT) thought that it was most advisable because they had obtained good results from its use even in cases where suppuration was highly suspected, and because recurrence of an attack

is not always avoided by an operation. All are agreed that the indications for operation are positive when there is a large abscess that threatens to rupture into the peritoneal cavity, or when peritonitis has already commenced. The indications for an early operation are only relative and are dependent upon the presence of a positive swelling (RECLUS, SCHMIT). A swelling it is thought always indicates suppuration, even though the general symptoms have improved or the swelling decreased somewhat in size. Decision is not to be made until the swelling is positive, and then the indications would simply be those of an abscess.

As additional reasons for operation it was shown that the recoveries attributed to opium are fallacies, as recurrence is frequent and the cases usually come to operation at some later time; and also that the danger of an operation and of possible hernia is very slight. The earliest operations, where the indications are based upon symptoms alone, were not discussed and do not as yet seem to have been strongly considered by the French surgeons.

In this country, the opium treatment, although it is mentioned in the most recent text-book of American surgery, is hardly thought of by the practical surgeon. Operative indications are positive when there is a swelling and relative when based upon symptoms. The difference is evident and would seem to mean that either some men are still behind or that some are beyond the limits of rational surgery. There are American surgeons who are even more conservative than the French, who will defer operation until there are all the signs of an abscess or even until they see the pus in an exploring needle. These men are certainly behind the limits of rationality. The work of TREVES, MCBURNEY, SENN and others have placed appendicitis operations, either during or after an attack, upon a sound basis, and there is no need of waiting after the diagnosis is made. Among most advanced surgeons the position of appendicitis treatment is nearing the level of strangulated hernia; any involvement at all, either by symptom or sign, is a sufficient reason for operation. As was recently the case, a diagnosis was made three hours after the first symptoms and an operation performed within four hours, with the result of finding a perforation and saving the patient's life (VAN HOOK). This is certainly indicative of the highest treatment for appendicitis. The unfavorable prognosis because of resulting adhesions and fistulæ and the longer duration of the sickness, where interference is postponed under conservative treatment, are so important that resistance to early operations can no longer be maintained. America may also claim precedence, besides advocating the early operation, in that WILLARD PARKER of New York was the first to recognize appendicitis as an operable disease. The French surgeons look upon tuberculosis as an important etiology, and even in cases without tuberculosis in other parts of the body. As to methods, their discussion does not offer any new points.

REGENERATION OF MUSCLE.

RUDOLPH VOLKMANN has recently made an extensive study of the processes that result in regeneration of striated muscular tissue as shown in the skeletal muscles after typhoid fever, after the influence of very low temperature, in trichiniasis, and after injuries, actual and experimental. Among the results of his studies may be mentioned that in striped muscle the regenerative changes commence in the nuclei of old fibres with which the new elements may, or may not, remain connected. In the first instance the process corresponds to the formation of buds, as described by NEUMANN, while the development of new elements without direct connection with the pre-existing resembles the embryonal type of muscle growth. In both forms the proliferation of muscle nuclei and the growth of protoplasm around them form the beginning of regeneration and in both forms, which may go on side by side, the protoplasm early shows a fine fibrillar striation. A formation of new muscular fibres by means of longitudinal splitting of the old, was not observed by VOLKMANN. Muscular tissue is regenerated after the embryonal type in such lesions as affect the contractile substance only or principally; practically this means after the coagulation necrosis in typhoid fever and after exposures to low temperature. After solutions of continuity affecting sarcolemma and connective tissue the regeneration occurs by means of budding principally; the budding is usually terminal, *i. e.*, it occurs at the ends of the severed fibres, where nuclear multiplication by the direct method essentially takes place and a nucleated mass of protoplasm is formed, which grows rapidly in length in the same direction as the old fibres at the junction with which it becomes fibrillated. Such budding was observed to commence about eight days after the injury to the muscle and to continue for a variable length of time up to six or eight weeks. In regard to the ultimate result of the reparative activity in damaged muscle it was found that it was only sufficient to restore continuity in very minute wounds which might heal with pure regenerated muscular tissue. All wounds of any size heal by means of connective tissue which may become muscularized for one to two millimetres from each wound margin. Transplanted muscular tissue dies very soon, is absorbed and replaced by a scar each end of which is muscularized for a very short distance. In trichiniasis VOLKMANN could not observe any evidences of muscular regeneration. In typhoid fever degeneration and after exposure to

cold of limited areas the regeneration was found sufficient to restore the affected muscles to their normal condition. In these cases the process of regeneration follows the embryonal type, as already stated, and the nuclei of the degenerated fibres multiply by the direct method and new cells are formed which are known as muscle cells and which absorb the waxy, dead remnants and give rise to new fibres by growth in length, so that each cell forms one fibre or, by coalescing, several muscle cells form one fibre. Scars in muscle develop after the degenerative changes of typhoid fever only when hæmorrhage or other extensive lesion has occurred. The process of regeneration in the striated muscles after typhoid fever is so pure and undisturbed that no better object for the study of these interesting phenomena than typhoid musculature can be found.

DRUGGIST AND PHYSICIAN.

The fact that druggist and physician are not working as harmoniously as of old is evidenced by the growing tendency to examine and analyze their true relations, and by the fact now being made clearly apparent, that a large body of medical men are in a considerable measure dispensing their own drugs.

There can be no doubt that the druggist is a great source of comfort to the physician, and that when he devotes himself to the profession of pharmacy in the spirit of a scientific seeker after facts, he is laboring for the best interest of the physician and the patient and is deserving of support and encouragement at the hands of the medical profession as a whole.

But unfortunately for all concerned he has chosen to place pelf above honor in many instances, and by so doing has cast an odium upon his honorable profession and freed the physician from all general obligation by his piratical ventures in the domain of patent medicine, counter prescribing and other like abominations.

An interesting change has lately manifested itself in the conditions of his business and he bids fair to be driven into the field of legitimate pharmacy, because there is no longer a profit in the illegitimate branch which has until lately flourished so rankly in our midst.

Patent medicines, colognes, toilet articles of all kinds, even soda water fountains, are finding a place in the large department stores, and prices are being cut to a degree which makes the business unprofitable to the purchaser of small consignments.

And while thus assailed upon the one side our druggist finds danger upon the other in the threatened desertion of his disaffected allies the doctors, who recognize in the new preparations a means of relief from a dependence which has in many cases proven most irksome.

Independence should be the watchword of our profession. The moment we lose or even relax our hold upon it we lack the right to claim especial consideration at the hands of our fellows.

Our object and aim is ever to secure for those under our care the greatest amount of benefit, and to that end we are to devote our own best energies and sacrifice personal comfort and often health or life itself, in our effort to maintain our profession upon that high plane which its intrinsic nobility merits.

We welcome all discussions looking to better conditions of work and hope that the near future may show us increase of scientific therapeutics and pharmacy, a deeper sense of individual responsibility and absolute professional independence.

THE QUACK QUESTION AS HANDLED BY THE CITY COUNCIL OF MANSFIELD, O.—At the meeting of the Council of the city of Mansfield, Ohio, on Nov. 29, 1892, an ordinance was passed by a two-thirds majority, which prevents any quacks or itinerant venders of medicine, "toothpullers" or other imposters practicing their nefarious schemes in that city without first getting a permit from the Health Officer, who, by the ordinance, is required to be a regular physician. The ordinance also requires these quacks to display a diploma from some respectable college before the Health Officer can give them the necessary certificate entitling them to a license at all. On the presentation of said certificate to the Mayor, they can receive a license for which they must pay not less than $25, nor more than $50 a day, and are also subject to a fine of not less than $25, nor more than $50, for each and every offense for the violation of this ordinance.

The law goes into effect immediately after its publication and covers physicians, mid-wives, pharmacists and dentists. If every City Council throughout the State of Ohio would follow the example set by the Council of Mansfield, they would take a grand step in the direction of getting rid of quacks and imposters which infest all our large cities. This plan has been tried in Kentucky, and so far has proved to be of great advantage in getting rid of these leeches, and should be followed by all the States that have no special laws or that cannot get special legislation to remedy this great evil.

NECROLOGY.

Dr. Wm. H. Geddings.

Dr. Wm. H. Geddings, of Aiken, died at Bethlehem, N. H., after a short illness on August 27. Dr. Geddings was the youngest son of the late Dr. Eli Geddings, of Charleston, S. C., and a brother of the late Dr. Frederick Geddings, of the same city, and Dr. Edward Geddings, of Augusta, Ga. Of a family of distinguished physicians, he was himself one of the brightest ornaments of his profession in the United States.

Dr. Geddings was born in Charleston, S. C., on the 23d day of April, 1838.

He first studied medicine at the Medical College of the State of South Carolina, at Charleston, and afterwards prosecuted his studies in the universities of Vienna, Berlin, Prague and Paris.

At the commencement of the war between the States' Dr. Geddings entered the Confederate army in the line of his profession, and shortly afterward rose to the position of Chief Medical Purveyor of the army of Northern Virginia, which high office he filled with distinction until the close of the war. He then settled in New York City and commenced the practice of his profession, but the health of Mrs. Geddings becoming impaired by the Northern climate Dr. Geddings on that account, moved South to Aiken in 1869, where he has ever since been continuously engaged in active practice; but for the past twelve years or more he has also engaged in a summer practice at Bethlehem, N. H., returning each fall to Aiken, the place he loved, where he was highly esteemed and enjoyed a lucrative practice, especially among the large number of visitors who were suffering with pulmonary diseases.

Dr. Geddings was a learned and strong man and a great physician. It was not only as a successful practitioner that Dr. Geddings became noted. He also attained a national reputation for his learning and as a distinguished writer on medical and scientific subjects. His writings are numerous, and he contributed freely to the medical journals, especially on climatology and the diseases of the respiratory organs. He also contributed many articles on Dermatology, having been at one time a pupil of the great Hebra. The latest of these was "A Contribution to the History of Leprosy on the Eastern Coast of the United States," which excited much interest among Dermatologists. He prepared the article "Aiken" in Wood's "Reference Handbook of the Medical Sciences." Perhaps one of his best articles was that on "Bronchial Asthma," prepared for "A System of Practical Medicine by American Authors," edited by Dr. Wm. Pepper. At the time of his death he was member of the following Societies: The American Medical Association, The South Carolina Medical Association, The Climatological Association, The Dermatological Association.

Dr. Geddings was married in July, 1866, to Miss Adele Getty, the daughter of A. Getty, Esq., of Philadelphia, who was a most devoted and tender companion, and is left to mourn his untimely end.

Graham N. Fitch, M.D.

Dr. Fitch, died at Logansport, Indiana, Nov. 28, 1892, aged 84 years. Dr. Fitch was one of the most notable men of Indiana, born in LeRoy, New York. His grandfather was a soldier in the Revolutionary War, and his father in the war of 1812. The subject of this sketch was educated at Middlebury, and at Geneva College, completing his medical studies at the College of Physicians and Surgeons, New York. He began the practice of his profession in his native town in 1832. In July, 1834, he located in Logansport, Ind.

Dr. Fitch was a member of the Indiana Legislature in the sessions of 1836 and 1837, and 1839 and 1840. He three times served as presidential elector. In 1844 he was appointed to a professorship in Rush Medical College at Chicago. From 1848 to 1852 he was a Representative to Congress from his district. From 1856 to 1861 he was United States Sentor. While in Congress he saw the gathering sectional cloud, and pointedly warned the South of the fatal consequences to them of the war they seemed to desire.

In the Presidential election of 1860 Senator Fitch advocated the election of John C. Breckenbridge, of Kentucky, who was the candidate of the south. This action was misconstrued and he was heralded as a rebel sympathizer. His action was explained by his adherence to Democracy and his unwillingness to support Stephen A. Douglas, the northern Democratic candidate for personal reasons. There had been a difficulty between the two in the Senate, resulting in the sending of a challenge by Douglas to Fitch. The latter promptly accepted but as his marksmanship was unerring, friends of Douglas interferred, and while the duel never came off the feeling continued. Thus the support of Breckinridge and the misconstruction it led to. When the war broke out Senator Fitch organized the 46th regiment, and assisted in filling two other regiments. With his regiment he was placed under General Buell's command at Louisville, Ky., later he joined General Pope, and was immediately put in charge of a brigade. He participated in the sieges of Fort Thompson and Island No. 10. After the fall of these posts he was detailed, with his brigade, to lay siege to Fort Pillow, in conjunction with the navy under Commodore Davis. The day following the fall of Fort Pillow, Colonel Fitch captured and garrisoned Memphis. A few days afterward he moved up White River, Arkansas, and captured, by assault, the fortifications at St. Charles. At the last place he took prisoner the wounded commander of the Confederate batteries, the unfortunate Col. Fry, of Cuban notoriety. Col. Fitch had two sharp engagements with the Confederates in Arkansas, in both of which he was victorious. An injury received in that State, by the fall of his horse while on a reconnoitering expedition, compelled him to leave the service before the expiration of the war. He was an ardent Democrat, but he never hesitated to dissent from his party when, in his judgment, its course was not for the best interests of the country. Many years ago he retired from all active participation in politics.

As a public officer he always fearlessly and faithfully performed every known duty. As a physician and surgeon few men have been more actively engaged or met with greater success, and he continued to practice his profession for the good of humanity until his last illness.

He was a member of the Medical Convention, which met in Philadelphia in May, 1850, for the purpose of revising the U. S. Pharmacopœia, as a delegate from Rush Medical College, Ill., and was appointed upon the Committee on Revision and Publication. He attended many of the meetings of the American Medical Association from an early date, among the last were those at Atlanta and Chicago. He occupied the chair of Professor of Principles and Practice of Surgery in the Medical College of Indiana, for four years and was Emeritus Professor at the time of his death.

Dr. Enoch Fithian, formerly of Bridgeton, New Jersey, died at his home in Greenwich, November 15. He was the oldest graduate of the medical department of the University of Pennsylvania, having been a member of the class of 1815. He continued in medical practice in Cumberland county for fifty years, or about thirty years ago. He was the first secretary of the county Medical Society, and afterwards became its presiding officer. After his retirement from active practice, Dr. Fithian gave much time to local historical subjects, and he has left behind him many pages of retrospective local interest. He was said to be the oldest living Free Mason in the United States, his tenure of membership having covered fully seventy-five years. At the last election Dr. Fithian, with assistance, went to the polls and cast his eightieth annual ballot. One day in May last he celebrated his centennial birthday, his birthyear having been 1792.

Dr. James R. Leaming, of New York City, died December 5, in his seventy-second year. He was a native of Groveland, New York, educated at Genesee, and graduated at the University Medical Department of the city of New York. This latter event took place in 1849, and in that same year young Dr. Leaming took up his permanent residence in the city last named. He early took an esteemed position in the

profession, becoming especially valued as a consultant in pulmonary diseases. In 1867 he was appointed visiting physician to St. Luke's Hospital, and later became the consulting physician to that institution, and to the Tremont House of Rest for Consumptives, also Professor of Theory and Practice in the Woman's Medical College. He was prominent in the scientific deliberations of the Academy of Medicine, and a few other societies, but he was reluctant, from reasons pertaining to his health chiefly, to take office in the bodies to which he belonged and of which he was an honored fellow. His final illness was ascribed to pulmonary and cardiac complications, not the least painful of which was a fibroid phthisis, the very malady that had oftentimes occupied his thoughtful attention, and that was the topic of his discourse before the Academy in 1876. He joined the American Medical Association in 1880. Nearly all his writings have reference to thoracic diseases and their diagnosis.

BOOK REVIEWS.

A POCKET MEDICAL DICTIONARY, GIVING THE PRONUNCIATION AND DEFINITION OF ABOUT 12,000 OF THE PRINCIPAL WORDS USED IN MEDICINE AND THE COLLATERAL SCIENCES. By GEORGE M. GOULD, A.M., M.D., etc., etc. Philadelphia: P. Blakiston, Son & Co. 12mo. pp. 317.

This little book is modern in its make-up, and adapted to the use of students and writers. It contains many useful tables and information of interest to the physician and pharmacist.

MEDICAL MICROSCOPY. A GUIDE TO THE USE OF THE MICROSCOPE IN MEDICAL PRACTICE. By FRANK J. WETHERED, M.D. (London), Member of the Royal College of Physicians. With illustrations. Octavo, pp. 406. Philadelphia: P. Blakiston, Son & Co. 1892.

This book attempts to give an account of the microscope and the optical laws that govern it, (p. 30), the microtome and its construction (p. 10), and the various methods of hardening and decalcifying (p. 12), of imbedding (p. 9), cutting (p. 11), staining (p. 35), and many other technological methods. The antiquated methods recommended astonish one and give us little hope for better work in the future from those who use this book as a guide. It seems astonishing that at this time no better, simpler, or more practical recommendations can be made to the physician than those here set forth. The most valuable part of the work consists in the pages devoted to the microscopical examination of clinical material for diagnostic purposes. In this part of the work there are a few not very good illustrations, and a fair amount of well arranged instruction and advice. A chapter is devoted to bacteriology, and the stereotyped figures and methods are used. Not a very great future for the work can be predicted, but in the hands of a good teacher it would become a cheap ($2.50) and convenient handbook for a laboratory course in clinical diagnosis.

THE ESSENTIALS OF HISTOLOGY, DESCRIPTIVE AND PRACTICAL. FOR THE USE OF STUDENTS. By E. A. SCHAFER, F.R.S., etc. Third edition, revised and enlarged. Illustrated by more than 300 figures, many of which are new. Octavo, pp. 302. Philadelphia: Lea Brothers & Co. 1892.

This beautiful book from the Glasgow University press is a valuable addition to our literature on this subject. It unfortunately does not maintain all the good qualities of the Section on Histology of Quain's Anatomy, by the same author. It must, however, be looked upon as one of the most complete manuals for class-room instruction, which we have at the present time. The arrangement of the course is admirable, and it is well adapted to a systematic laboratory course, with a live teacher. The amount of illustrations makes it possible to use it as a work of reference in a small way. The histological methods recommended are not of the most simple and uniform character. We believe that it would be a great improvement to have more simple and yet full and useful technological methods recommended. This book savors too much of the "shorter course in" series, but it has as few of the faults of such condensations as could be expected.

MCARTHUR DIARY FOR 1893.—Any physician who has not received a copy will receive one, on application, without expense. Address McArthur Hypophosphite Co., Ansonia, Conn.

MISCELLANY.

PRELIMINARY ANNOUNCEMENT of the sixth annual meeting of the National Association of Railway Surgeons, embracing the United States of America, the Dominion of Canada, the Republic of Mexico, to be held at Omaha, Neb., the last Wednesday, Thursday and Friday of May, 1893.

General Subject: Injury of the Cord and Its Envelopes Without Fracture of the Spine. 1. History, by Dr. Geo. Ross, Chief Surgeon Richmond and Danville R. R., Richmond, Va.; 2. Anatomical Landmarks, by Dr. Jabez N. Jackson, Surgeon Wabash R. R., Kansas City, Mo.; 3. Physiology of the Spinal Cord, by Dr. A. P. Grinnell, Chief Surgeon Central Vermont R. R., Burlington, Vt.; 4. Experimental Research, by Dr. B. A. Watson, Surgeon Pennsylvania R. R., Jersey City, N. J.; 5. An Experimental Study of Spinal Myelitis and Meningitis, by Dr. George A. Baxter, Division Surgeon Chattanooga Southern R. R., Chattanooga, Tenn.; 6. The Clinical Aspects of Spinal Localization, by Dr. Nicholas Senn, Surgeon Chicago, St. Paul and Kansas City R. R., Chicago, Ill.; 7. Diagnosis from the Standpoint of the Neurologist, by Dr. C. H. Hughes, Consulting Surgeon Missouri Pacific R. R., St. Louis, Mo.; 8. Pathology and Pathological Anatomy, by Dr. Samuel C. Benedict, Surgeon Richmond and Danville R. R., Athens, Ga.; 9. Prognosis, by Dr. Samuel S. Thorn, Chief Surgeon Toledo, St. Louis and Kansas City R. R., Toledo, O.; 10. Treatment, by Dr. W. A. Outten, Chief Surgeon Missouri Pacific R. R., St. Louis, Mo.; 11. Medico-Legal Aspects, by Judge J. H. Collins, Chief Counsel Baltimore and Ohio R. R., west of the Ohio River, Columbus, O.; 12. Statistics of the Amount of Money paid by the Railroads of the United States, during the last Ten Years, for Alleged Injuries of the Spine, by Dr. F. K. Ainsworth, Surgeon Southern Pacific R. R., Los Angeles, Cal.; 13. Clinical Report—1. from a Medical Aspect—(*a*) Permanent Injuries—(*b*(Alleged Injuries; 2. From a Legal Aspect—(*a*) Settled with Suit—(*b*) Settled without Suit—(*c*) Miscellaneous, by Dr. Geo. Chaffee, Surgeon Long Island R. R. Brooklyn, N. Y.

C. W. BROCK, M.D., Pres., Richmond, Va. E. R. LEWIS, M.D. Sec., Kansas City, Mo.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 3, 1892, to December 9, 1892.

By direction of the President, the retirement from active service on December 4, 1892, by operation of law, of Col. Anthony Hegar, Asst. Surgeon, under the provisions of the Act of Congress approved June 30, 1882, is announced, and he will proceed to his home.

Major John O. Skinner, Surgeon U. S. A., leave of absence granted on account of sickness, is extended six months on account of sickness.

Major J. C. G. Happersett, leave of absence on surgeon's certificate of disability granted in S. O. 178, Dept. Dak., November 18, 1892, is by Par. 6, S. O. 286, A. G. O., extended three months on surgeon's certificate of disability.

OFFICIAL LIST OF CHANGES in the Medical Corps of the U. S. Navy, for the Week Ending December 10, 1892.

Asst. Surgeon L. H. Stone, from the "Pinta" and ordered home, one month's leave.

Asst. Surgeon L. L. Young, from the "Mohican" and ordered to the "Pinta."

P. A. Surgeon H. N. T. Harris, from the "St. Louis" and wait orders to the "Bancroft."

P. A. Surgeon V. C. B. Means, from Naval Hospital, Norfolk, and to the "Saratoga."

P. A. Surgeon J. M. Steele, from the "Saratoga" and to the "St. Louis."